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Black-Clawson, Shartle and Dilts Combine

Three Representative and Widely Known Builders of Paper-Making Machinery Announce Merger — Sales Engineers Will Be Able To Offer the Complete Lines of All Three Companies.

The Black-Clawson Company of Hamilton, Ohio, announces the merging of the Dilts Machine Works, Inc., of Fulton, N. Y., with the Black-Clawson Company and the Shartle Brothers Machine Company. The combination of the Dilts plant together with that of the Shartle plant at Middletown, Ohio, brings together it is said, the two largest builders of stock preparation equipment in this country.

Will Retain Same Personnel

H. L. Kutter, president of the Black-Clawson Company states that the Dilts plant will retain the same personnel and operate from the same location. The sales engineers of the Black-Clawson Company, Shartle Brothers, and Dilts Machine Works will all be able to offer the complete line of the three companies.

Dilts Organized in 1867

The Dilts plant was organized in 1867. During the last few years they have specialized in their well known hydrafiners, classifiners, beaters, breaker beaters, agitators, washers, etc., and about a year ago brought out their outstanding contribution to the paper industry, the hydra-pulper, of which eighteen have been sold, and which has literally revolutionized the art of pulping, the unit being adaptable to all kinds of pulps as well as the dirtiest of mixed papers.

Three Plants Employ 884 Men

These three plants regularly employ 884 men, the Black-Clawson plant being devoted to the manufacture of Fourdrinier, cylinder and Yankee machines, pasters, cutters, etc., while Shartle and Dilts have always specialized in stock preparation and processing equipment.

Mead Sells Interest in St. Joe

George H. Mead, president of The Mead Corporation, mailed to shareholders on May 28 the following announcement: "Conforming to our policy of keeping the shareholders informed of important changes or developments in the Corporation's affairs, we wish to report the sale of our interest in St. Joe Paper Company.

"An opportunity arose to dispose of this interest for a cash amount which would cover the investment, plus a profit. After careful consideration, and taking into account present conditions, your directors accepted this offer, and the money has not been received.

"We believe that the location of Brunswick, Georgia, in which we are established through common stock ownership in the Brunswick Pulp and Paper Company, and possibly other sites, have the advantages of the St. Joe location, and are better suited to our purposes and the future developments of the corporation. It is the opinion of our management that the funds received from the sale of the St. Joe equity can be used to better advantage in other branches of the company's business."

Operates Androscoggin Mill

The Supertex Corporation is now operating the Androscoggin Pulp mill at South Windham, Me. which was formerly a division of the Robert Gair Company. The officers of the Supertex Corporation are G. Machlup, president; Joseph J. Krohn, secretary and treasurer and A. B. Farnham, clerk. At present the mill is confining its production to dry groundwood of the same quality as that which has been produced in the plant for many years. The staff of employees is of long experience and there have been no important physical changes in the buildings. The machinery and equipment has been partly renewed and in some instances new installations have been made to bring the mill to a higher state of efficiency. Further modernization of the plant is intended. For the time being the capacity of the mill will be no more than 15 to 25 tons of mechanical pulp daily.

Oxford to Retire Bonds

Hugh J. Chisholm, president of Oxford Paper Company, has announced that directors have voted to retire the entire issue of Oxford Miami Paper Company first mortgage 6 per cent bonds due in 1947. The call price is $101 and payment will be made June 22, next, or at any prior date at the bondholder's option. Outstanding in the amount of $1,110,000, the Oxford Miami issue will not be publicly refunded, it is understood, but will be paid off through private borrowing.

News of Wisconsin Paper Industry

Club of Printing House Craftsmen Guests of Whiting-Plover Paper Co. In Tour of Paper Mills—Paper Chemistry Students Graduate June 12—Labor Council Discusses Working Conditions — Other Industrial News.

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., June 3, 1940—Sixty-five members of the Minneapolis Club of Printing House Craftsmen were guests of central Wisconsin paper mills last week. They travelled by automobile and made their first stop at Stevens Point, Wis., where they were guests of Whiting-Plover Paper Company at a breakfast at Hotel Whiting. They made a tour of the mill during the morning.

The next destination was the main mill of the Consolidated Water Power and Paper Company, Wisconsin Rapids, Wis., where a noon luncheon was served, followed by a tour of the plant. Later in the afternoon the group visited the Nekoosa-Edwards Paper Company's mills at Port Edwards and Nekoosa, Wis.

The visit concluded with a dinner and business meeting in the evening at the Bull's Eye Country Club at Wisconsin Rapids. Officers of the club making the trip were: Walter Brunner, president; L. C. Nelson, vice-president; Frank Loritz, secretary, and Arthur Leuchsman, educational chairman.

Four cases in which the Consolidated Water Power and Paper Company was defendant were settled in court at Stevens Point, Wis. last week before going to trial. They involved claims for damages to riparian lands because of backwater from the company's Stevens Point Dam. P. O. Virum, Iron River, Wis., and Dr. G. W. Reis, Junction City, Wis., received a judgment of $1,828 on a jointly owned farm. Other plaintiffs who accepted settlements, the amounts of which were not revealed were Anton and Veronica Kowalski, Eau Pleine, Wis., Frank and Helen Haskowski, Eau Pleine, and Alexander Kieliszewski, Dewey, Wis.

Council Discusses Working Conditions

Discussion of wages, hours and working conditions took place at a meeting of the Tri-State Labor Council at Tomahawk, Wis., Sunday, June 2. There were 250 delegates of paper mill unions present from Wisconsin, Minnesota and Upper Michigan. Speakers included Gerald Boileau, Wausau, Wis., former congressman. Rasmus Anderson, Green Bay, Wis., representative of the International Brotherhood of Papermakers, and Emil Norene, Wausau, Wis., representing the International Brotherhood of Pulp, Sulphite and Paper Mill Workers. Oswald Sharkey, Wisconsin Rapids, Wis., president of the council, presided, and George Oelhafen, Tomahawk, Wis., was general chairman.

Champion Safety Worker Proclaimed

When the Fox River Valley and Lake Shore Safety Conference was held at Marinette, Wis., Thursday, May 23, Ernest Jennerjahn, roll grinder at the Kimberly-Clark Corporation mill at Kimberly, Wis., was proclaimed the "United States grand champion safety worker." He is 62 years old, and has worked 145,316 consecutive man-hours without loss of time for accident. He started work at the mill Jan. 31, 1893, and his safety record extends over a period of 47 years. He became a roll grinder in 1905. Mr. Jennerjahn received a pen and pencil set, and a framed certificate from the National Safety Council.

Awards also were given C. Vander Velden and Joseph Van Rooy, employes of Kimberly-Clark at the Kimberly mill, and Alfred Roran, employed by the Atlas mill of Kimberly-Clark at Appleton, Wis.

Paper Chemistry Students Graduate June 12

Twenty-four students will be graduated from the Institute of Paper Chemistry when commencement exercises take place Monday, June 10, at Lawrence College, Appleton, Wis., with which the Institute is affiliated. Thirteen will receive doctor degrees and 11, master degrees. The commencement speaker will be Dr. Max Otto, Professor or philosophy at the University of Wisconsin.

Joseph Plank Talks on Dandy Rolls

The intricate process of manufacturing dandy rolls was explained to the Lions Club of Menasha, Wis., at a meeting last week by Joseph J. Plank, president of Joseph J. Plank Company, Appleton, Wis. He explained its importance in paper making, since the roll is used on practically all paper machines even though it is not watermarked. Each roll of the size used in the average paper mill, he said, requires approximately 15,000 separate and distinct places to be soldered.

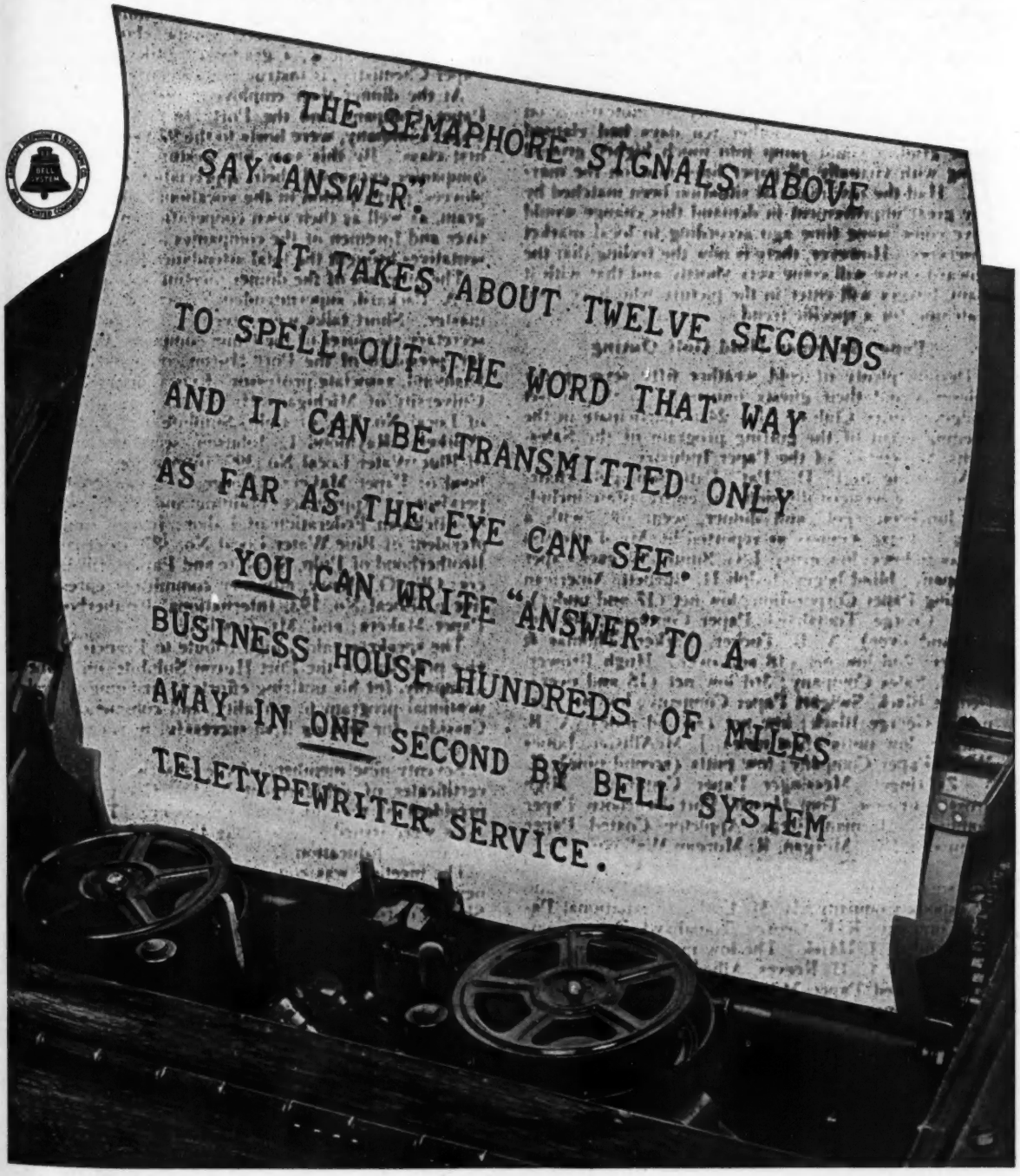
Memorial To Late Congressman Schneider

A memorial to the late Congressman George J. Schneider was unveiled at his grave in Riverside cemetery, Appleton, Wis., at ceremonies Memorial Day. The monument was the gift of members of the International Brotherhood of Papermakers, of which Schneider was international vice-president for thirty years. The unveiling was done by Arthur Huggins of Fort Edwards, New York, president of the brotherhood.

Papermen in Who's Who

Three paper mill executives of Wisconsin are among those whose names have been added in the 1940-41 edition of "Who's Who in America." They are A. C. Gilbert, president of Gilbert Paper Company, Menasha, Wis., Ernst Mahler, executive vice-president of Kimberly-Clark Corporation, Neenah, Wis., and C. C. Yawkey, chairman of the board of Marathon Paper Mills Company, Rothschild, Wis.

Another entry is that of Guy C. Howard, Wausau, Wis. He developed the Howard process for reclaiming waste sulphite liquor in pulp mills. His process is used by the Marathon Paper Mills Company and its subsidiary, Salvo Chemical Company, to produce valuable by-products from pulp mill wastes. Mr. Howard is in charge of continuing research in this department of the Marathon mills.


THE SEMAPHORE SIGNALS ABOVE
SAY "ANSWER."
IT TAKES ABOUT TWELVE SECONDS
TO SPELL OUT THE WORD THAT WAY
AND IT CAN BE TRANSMITTED ONLY
AS FAR AS THE EYE CAN SEE.
YOU CAN WRITE "ANSWER" TO A
BUSINESS HOUSE HUNDREDS OF MILES
AWAY IN ONE SECOND BY BELL SYSTEM
TELETYPEWRITER SERVICE.

Chicago Expects Strong Paper Market Soon

With Index and Bristol Grades Showing Marked Strength and Kraft Paper Very Active, Midwest Paper Trade Look For General Upturn Soon — Fifty Paper Salesmen and Guests Hold First Golfing Outing.

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., June 3, 1940—Indexes and bristols followed the general upturn in these lines last week and consolidated gains to give the Chicago paper market its only major news of the period. Krafts continued to be very strong and groundwoods were likewise reporting a mill production basis forecasting a marked upturn in the price structure. Newsprints were likewise reported in a very good condition. Meanwhile, bonds and ledgers in general failed to show any actual upturn but there were plenty of indications on all sides that before another ten days had elapsed these grades would jump into much higher ground along with virtually all paper lines now on the market. Had the raw material situation been matched by any great improvement in demand this change would have come some time ago according to local market observers. However, there is now the feeling that the upward move will come very shortly and that with it many buyers will enter in the picture who have been watching for a specific trend.

Paper Salesmen Hold Golf Outing

Despite plenty of cold weather fifty seven paper salesmen and their guests journeyed to the Sunset Ridge Country Club on May 24 to participate in the opening event of the golfing program of the Salesmens Association of the Paper Industry.

According to F. D. "Pat" Patterson, golf chairman of the western division, the entire affair including luncheon (golf and dinner, went off "with a bang." Prize winners as reported by Mr. Patterson are as follows: low gross, J. G. Smith, Swigart Paper Company; blind bogey, Ralph H. Burnett, American Writing Paper Corporation; low net (17 and under), R. E. George, Tomahawk Paper Company; low net (18 and over), A. B. Tucker, Parker, Thomas & Tucker; 2nd low net (18 and over), Hugh Brower, Wytek Sales Company; 3rd low net (18 and over), George Black, Swigart Paper Company; low net (1st nine), George Black; low net (second nine), A. B. Tucker; low putts (first nine), J. McAllister, James White Paper Company; low putts (second nine), E. V. Zahringer, Messinger Paper Company. High gross foursome, Tom Hosch, Fort Dearborn Paper Company, Herman Berge, Appleton Coated Paper Company, Dick Morgan, R. Morgan Wallpaper Mills and Jim Coy, Flambeau Paper Company. Low net foursome, Alex Shannon, International Tag and Salesbook Company; H. M. Early, International Paper Company; R. E. George, Tomahawk Paper Company and C. J. Hajek. The low putts foursome was composed of C. H. Reeves, Allied Paper Mills, Ford Kettle, Allied Paper Mills, Gene Hammes, Graham Paper Company and J. C. Marvin of Bermingham & Prosser Company.

Vocational Education Dinner Program

A dinner meeting held at the Back River Country Club on May 22 concluded the spring term of the new Port Huron Vocational Education program for the pulp and paper industry. Under this program, the first and only one of its nature in the State of Michigan, a general, two-year course entitled, "The Manufacture of Pulp and Paper" is being offered to the employees of the local pulp and paper mills, using the open discussion or conference-type class meetings. Wilbur L. Cassiday, a graduate of the Institute of Paper Chemistry, is instructor and conference leader.

At the dinner their employers, the Dunn Sulphite Paper Company and the Port Huron Sulphite and Paper Company, were hosts to the 92 members of the first class. By this very fine gesture the two paper companies expressed their appreciation of their employees' participation in the vocational education program, as well as their own cooperation in it. Executives and foremen of the companies and school representatives brought the total attendance to 120.

The program of the dinner meeting was as follows: L. A. Packard, superintendent of schools, was toastmaster. Short talks were given by George C. Dunn, secretary-treasurer of the Dunn company; E. W. Kiefer, president of the Port Huron company; Thomas Diamond, associate professor of vocational education, University of Michigan; Harold C. Riggs, president of Local No. 156, of Pulp, Sulphite and Paper Mill Workers; Raymond L. Johnson, secretary-treasurer of Blue Water Local No. 399, International Brotherhood of Paper Makers; George W. Dean, State Supervisor of Apprentice Training and Vice president of Michigan Federation of Labor; Joseph Emerson, president of Blue Water Local No. 387. International Brotherhood of Pulp, Sulphite and Paper Mill Workers; Olin O. Henry, advisory committee representative of Local No. 193, International Brotherhood of Paper Makers; and, Mr. Cassiday.

The speakers paid a high tribute to Francis Kiefer vice president of the Port Huron Sulphite and Paper Company, for his untiring efforts in bringing this educational program to a reality, and commended Mr. Cassiday for making it so successful in such a short time.

Seventy-nine members of the class were presented certificates of achievement by Dr. George Waters, president of the Board of Education. The certificates were issued by the State Board of Control for Vocational Education.

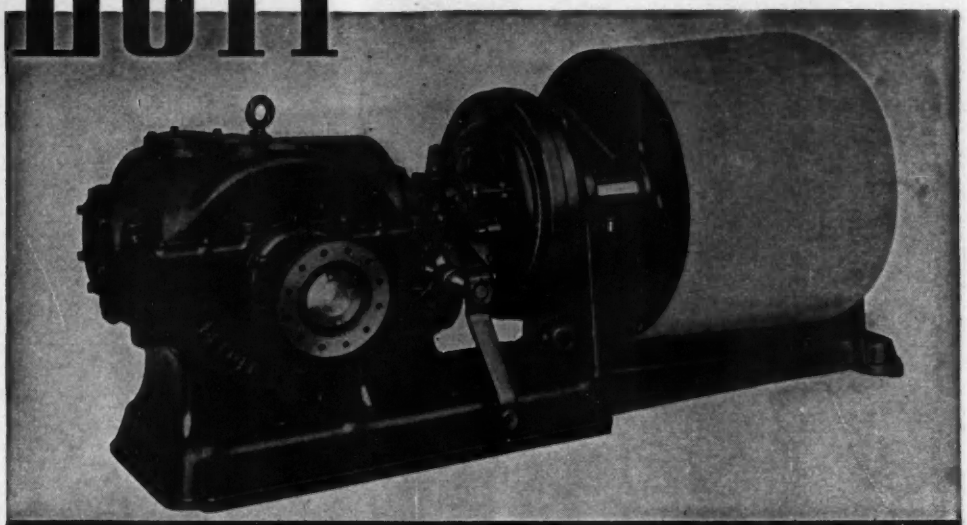
The meeting was concluded by the showing of the new P. H. Glatfelter Company film entitled, "A Short Course in Paper Making."

Selling Agent Changes

BOSTON, Mass., June 3, 1940—The name of Smith, Dee & Lane, manufacturers' representatives, has been changed to Smith & Lane Company, a partnership composed of E. J. Smith and Philip H. Lane. The address remains the same at 610 Atlantic avenue. The company has several new salesmen.

Donald Wyman, manufacturers' selling agent, has removed to 683 Atlantic avenue from 10 High street.

BELOIT



HEAVY DUTY
Hypoid Gear Drive

● **Gears cut of special steel are totally enclosed and operate in bath of oil. Gear and pinion shafts are mounted on roller bearings which are automatically lubricated.**

Equipped with improved Beloit automotive type clutch having unusually large air-cooled friction plate area. Oil lubricated throw out collar

BELOIT IRON WORKS PAPER MACH'Y BELOIT WIS.

THE BELOIT WAY IS THE MODERN WAY

BELOIT IRON WORKS, Beloit, Wisconsin, U. S. A.

Hummel-Ross Fibre Corp. Expands

The aerial view presented herewith represents the plant of the Hummel-Ross Fibre Corporation at Hopewell, Va. The plant manufactures sulphate kraft pulp, cylinder and Fourdrinier liner, kraft wrapping paper, folding boxboard and turpentine. The illustration shows to advantage the piles of pulpwood necessary in the production of 200 tons of pulp daily. The plant is located on the bank of the historic James River, assuring adequate supply of water, and is situated high above any possibility of floods. New equipment is now being installed that will add 50 tons of pulp per day to the production of the plant. Since the building of the mill in 1921, the management has been headed by J. P. Hummel, now chairman of the Board, and his son, Fred E. Hummel, president.

New Morrison Stitching Machine

The Harris-Seybold-Potter Company, through its Seybold Division at Dayton, Ohio, is announcing a new Morrison Side Seam Stitching Machine.

This machine which is designed to stitch the manufacturers seam in corrugated or solid fiber shipping containers will be an item of major interest to box manufacturers. The engineers of box manufacturing plants who have witnessed the operation of the machine are very enthusiastic not only over production speed but also the remarkably good work that the seamer does. The following nine points of major advantages are listed by the manufacturers:

The machine is almost unlimited as to size of box which it will stitch.

It is capable of stitching as fast as any operator can fold the boxes and push them away from him. Only one operator required.

It will handle corrugated or fiber boxes of any grade without crushing, marking, or deforming.

It is so quickly adjustable for change of set-up that it is profitable for very short runs, as well as long runs.

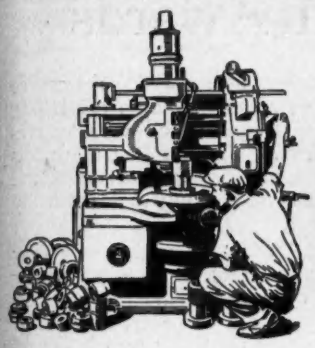
There is no set-up adjustment requiring shifting or changing gears, and no shift, change, or adjustment of cams or ratchets.

The number of stitches is determined by the box itself and the stitch spacing. No set-up adjustment required.

The spacing of stitches is uniform; spacing does not depend on the skill of the operator.

Safety for the operator is provided by guards and the construction of the machine.

The stitcher head is the new "SL" type, the last word in stitch forming and driving mechanisms.



Langston
SLITTERS & ROLL WINDERS

MATERIALS

There is no skimping on materials in any Langston machine. Gears, for instance; one of the vital parts. We cut them ourselves and use nitrided steel which provides a glass hard surface with tough center . . . unequalled for wear and strength. All parts are liberally proportioned. Heavy duty bearings of a type best suited for a specific job are used, including S.K.F., Hyatt and Timken.

Abundant use of the most suitable material assures a sturdy, balanced unit that stays in permanent alignment. It runs smoothly at high speeds greatly reducing the wear and tear of present day production schedules. That's why Langston Slitters and Roll Winders are noted for low maintenance and repair costs.

Plants operating 24 hours a day and 300 days a year cannot afford production delays at the slitter or winder end. They can depend on Langston Slitters and Roll Winders to keep ahead of the paper machine and to make solid, straight-edged rolls free from dust.

Shear Cut and *Surface* or *Drum Winding* are acknowledged to be the best slitting and winding practice. They are both time-tested Langston features.

Be sure your mill, finishing room or converting plant is equipped to meet competition by installing a *Langston.* There is a type and size for every need.

TYPE CA

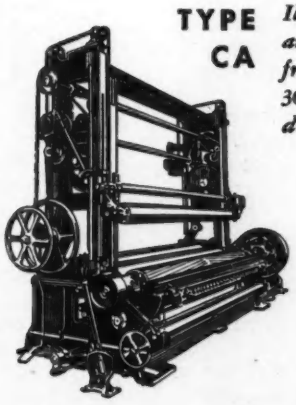
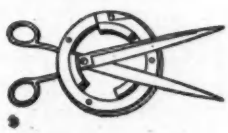


Illustration is typical of Langston CA and DA machines, built in widths from 82" to 265" and for speeds up to 3000 feet per minute. Any desirable drive can be provided to suit your plant.

shear cut



clean cut

SAMUEL M. LANGSTON COMPANY, *Camden, N.J.*

Government Paper Bids and Awards

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., June 5, 1940—The R. P. Andrews Paper Company has been awarded the contract for furnishing the Government Printing Office with 40,000 pounds of supercalendered book paper in 28½" rolls at 4.73 cents. Barton, Duer & Koch Paper Company will furnish 25,000 pounds of 22 x 28" No. 20 and No. 25 best quality binders board at 4.95 cents. Bids for these items were received on May 13. Other paper awards announced include the following.

Mathers-Lamm Paper Company will furnish 2,000 sheets of 20 x 24" glazed paper at $10 per M sheets. Mudge Paper Company will furnish 40,000 pounds of supercalendered book paper in 28½" rolls at 4.75 cents. Barton, Duer & Koch Paper Company will furnish 7,240 pounds of 50% rag, 22½ x 28½" buff index paper at 12.37 cents. R. P. Andrews Paper Company will furnish 10,000 pounds of oiled manila tympan paper in 48" rolls at 7.45 cents, Cauthorne Paper Company will furnish 1,000 pounds of red stereotype molding paper in 24" rolls at 13.66 cents. Stanford Paper Company will furnish 67,800 pounds of 24½ x 32½" white sulphite index paper at 5.17 cents. Bids for all of these items were received on May 6.

National Pulp and Paper Company will furnish 393,000 pounds of newsprint paper in 48" rolls at 2.55 cents, bids for which were received on May 3.

Enterprise Paper Company will furnish 7,500 pounds of 26 x 38" newsboard at 1.98 cents, bids for which were received on May 1.

Paper Corp. of U. S. will furnish 8,880 pounds of 24 x 38" chemical wood manila paper and 28,500 pounds 27 x 38" same at 5.24 cents, bids for which were received on April 26.

R. P. Andrews Paper Company will furnish 10,000 pounds of 75 per cent rag, 20½ x 28" white antique laid book paper at 10.77 cents. Same firm will also furnish 10,000 pounds of 40 x 42" chemical wood manila paper at 5.5 cents and Barton, Duer & Koch Paper Company will furnish 12,000 pounds of 20 x 30" binders board at 4.95 cents.

Government Printing Office has received the following bids for 24,000 pounds (150,000 sheets) of machine finish book paper; R. P. Andrews Paper Company 5.98 cents; Old Dominion Paper Company, 6.48 cents; Barton, Duer & Koch Paper Company, 6.49 cents; Stanford Paper Company, 9.05 cents. Paper Corp. of U. S., 5.49 cents; and Fitchburg Paper Company, 6.75 cents.

For 1,438 pounds of 50 per cent rag, 20 x 25" red cover paper; Lee Paper Company, 18 cents; R. P. Andrews Paper Company, 16 cents and 17 cents; and Barton, Duer & Koch Paper Company, 19.76 cents.

Indianapolis Less Active

INDIANAPOLIS, Ind., June 3, 1940—Due to the holiday vacation coupled with cool and rainy weather most of the week, the paper business in this section fell off last week. The trade is not downheartened, for they are predicting that a couple of weeks good weather will see business resume in fine shape. Although the entire spring has been backward, volume is about on a par with the year before and some good trading conditions will do much to help.

Fine paper volume is holding up well. Prices are being kept firm and there appear to be no disturbing conditions in the market. Demand for covers, ledgers and bonds is holding firm. The fact that there has been virtually no real spring weather curtailed the volume of direct by mail advertising that naturally would have been sent out.

Building paper demand, while below that of a year ago, is picking up and a favorable change in weather conditions will do much to improve it. A large volume of building is in prospect and the trade is not worried. Most dealers have relatively well balanced stocks on hand, but any real demand will see them forced into the market.

Demand for containers continues good. Most local factories are working at least two shifts a day and some three. A heavy demand is coming now from the ice cream and brewery trades and this trade is expected to increase in the coming month.

The summer specialty demand, after getting off to a slow start picked up somewhat last week. Dealers found their stocks badly depleted due to the holiday and began reordering the middle of the week. Tissues also are moving nicely.

While mill demand for rags was rather light last week, local buyers report that prices appear to be stronger. Much the same is true of the old paper demand only more so. Prices are extremely strong on most old paper grades.

Boston Paper Men To Have Outing

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., June 3, 1940—The Charles River Country Club, Newton Centre, Mass., as for a number of years, will be the scene of the regular June meeting and outing of the Boston Paper Trade Association Monday, June 10. Members have always had a good time at this country club, where a regular buffet luncheon will be served at the Locker Building from 11:30 on. Dinner will be served at 6:45 P.M., after which the prizes will be awarded to the winners in the sports.

Outdoor sports will start at 2 o'clock sharp (Daylight Saving Time) and continue through the entire afternoon, with A. T. Carter as chairman of the committee. The events, for which prizes are offered to winners of first and second place, with those in charge are scheduled as follows: Horseshoes, 2 P.M., Hubert W. Lockhart; putting, 3:15, F. W. Masselink; bowling, 4:15, David Cheever; ball game, 5 P.M. Beach.

"The Event of the Year" is the golf tournament, with the following committee: W. J. McLellan, chairman, Nelson Feeley, Floyd H. Blackman, P. Richardson, and W. Edwin Porter, Jr. Golf includes 18 holes, four-ball only, medal play, kicker's handicap, and special event, to be announced on the bulletin board.

Prizes are as follows: Class A Handicap, 20 and under—first gross, first net (Challenge Cup), second net, third net. Class B Handicap, 21 to 28—first gross, first net, second net, third net. Class C Handicap 28 and over—best selected nine holes. Class B can play for Championship Cup by relinquishing handicap and accepting 20 rating.

New Setup in Pulp

VANCOUVER, B. C., May 31, 1940—A new setup in world pulp markets that gives British Columbia an exceptional advantage is the finding of A. E. McMaster of Vancouver, B. C., outstanding authority on pulp and paper, in a survey of the whole pulp situation with special reference to this province's opportunities.

Austria, Latvia, Czecho-Slovakia, Poland, Lithuania, Estonia, Finland and Norway are all pulp-making countries which in normal times are an important export factor. Sweden is the largest exporter of all, and should that country become directly involved in the conflict its position would be similar to that of Norway. The countries mentioned here contributed close to 85 per cent of the world's wood-pulp exports in 1937.

It is estimated that during the present phase of the conflict very little Scandinavian pulp will reach the outside market. There is every indication of an acute pulp shortage in Europe.

While American consumers developed large inventories because of the threat of trouble in Europe, a shortage now appears imminent and it will become serious before the end of this year, according to the McMaster survey, especially in the higher grades of unbleached pulp usually imported from Europe.

With European producers virtually eliminated from world markets, it will fall on the mills of Canada and the United States to supply Japan, South America, Mexico, Australasia and domestic consumers.

Analyzing this situation, Mr. McMaster concludes that the apparent shortage of unbleached sulphite is 621,000 tons a year, or bleached sulphite 68,000 tons —a total of 689,000 tons. While the shortage of bleached sulphite is not serious and may be offset by overtime operation of domestic mills, an acute situation faces the supply of unbleached pulp. The United States alone imported 515,720 tons in 1938, or 46 per cent of the total of all grades, from the Scandinavian countries.

Mr. McMaster doubts whether as much as 50 per cent of this volume can be counted on under present conditions, but he uses that figure for computation, and this would still leave a shortage of 363,140 tons, which could be corrected only by reconstruction of excess news grade capacity to enable the production of the required high commercial grades, or by new mills, and it would take a year for a new plant to get into production.

There will not be much relief, Mr. McMaster contends, even if the conflict should veer away from the Scandinavian area, and when peace returns the demand for pulp will inevitably continue and grow as trade gradually returns to its normal channels.

APPLETON
JORDANS

Uniform Brushing and Refining for Every Requirement in the Modern Paper Industry

Here is a sturdy, dependable jordan that does its work quickly and thoroughly. There is a size for every production demand on any kind of stock. Even under severe service conditions Appleton Jordans give superior performance for they are built with an extra margin of structural refinement. That is why they maintain original efficiencies and always give uniform refining with accurate control. Close-Coupled motors are an exclusive feature.

• • •

A copy of the Appleton - Jordan folder will be sent to you promptly on request.

THE APPLETON MACHINE COMPANY · APPLETON · WIS

Arthur F. Moul Honored

Arthur F. Moul, vice president of Samuel C. Rogers & Co., Buffalo, N. Y., has been elected president of the Buffalo Foreign Trade Association. This organization is made up of the representative men of Buffalo and is one of the largest of its kind in the country. Samuel C. Rogers & Co., manufacturers of knife and saw grinding machinery for over fifty years, ship their grinders all over the world.

CONSTRUCTION NEWS

Parchment, Mich.—The Kalamazoo Vegetable Parchment Company, has approved plans for new one-story addition, to be used primarily as a pulp storage unit. Cost reported close to $40,000 with equipment. Contract for erection has been awarded to M. C. J. Billingham, Kalamazoo, engineer, who also has prepared plans for structure.

Johnsonburg, Pa.—The Castanea Paper Company, manufacturer of book and other paper stocks, plans extensions and improvements in mill, including modernization in different departments. Proposed to begin work soon. Cost reported close to $50,000, including equipment. T. K. Hendryx, 165 Interstate parkway, Bradford, Pa., is engineer.

New York, N. Y.—The Chelsea Box Corporation, recently organized, plans early operation of local plant for the manufacture of paper boxes and containers of various kinds. New company is represented by Isidore Lowenbraun, 113 West Forty-second street, New York, attorney.

Philadelphia, Pa.—United States Gypsum Company, 56th street and Schuylkill avenue, manufacturer of wall board, etc., has completed plans for new one-story addition to local plant, reported to cost over $50,000, with equipment. Bids have been asked for general erection and contract will be awarded soon. Main offices are at 300 West Adams street, Chicago, Ill.

Richmond, Va.—The Manchester Board and Paper Company, Inc., manufacturer of paper board specialties, chip board, etc., has work under way on new two-story addition to mill on Mayo's Island, and will push construction to early completion. As previously noted in these columns, new unit will be used for storage and distribution, and is reported to cost approximately $30,000, including equipment. Allen J. Saville, Inc., Electric Building, Richmond, Va., has the general contract for erection.

Newton, N. J.—The Campbell Company, Hicks avenue, special paper products, has plans under way for new local mill for the production of processed photographic papers, including sensitizing unit and other divisions. It will be one and two-story, and basement, about 60 x 250 feet, reported to cost close to $80,000, including equipment. Bids are scheduled to be asked soon on general erection contract. Construction will be carried out during the summer.

New York, N. Y.—The Blyco Paper Company, organized to deal in paper goods, has leased the main floor, basement and second floor in building at 214 Sullivan street, and will occupy for company headquarters, storage and distribution.

Rochester, N. Y.—The Eastman Kodak Company, Kodak Park, manufacturer of processed photographic papers, films, etc., has approved plans for new one and multi-story addition to plant, reported to cost close to $300,000, with equipment. Erection contract has been let to the Ridge Construction Company, Kodak Park, and work will proceed at once.

Philadelphia, Pa.—The Robert Gair Company, 155 East 44th street, New York, N. Y., manufacturer of corrugated boxes and containers, has awarded general contract to Industrial Constructors, Inc., Broad street and Allegheny avenue, Philadelphia, for proposed one-story addition to local branch plant at State road and Rhawn street, previously referred to in these columns. Work will be placed under way at once. Expansion is reported to cost approximately $45,000, with equipment. T. Raymond Pierce, first noted address, is company engineer, in charge.

Hopewell, Va.—The Tubize-Chatillon Corporation, 2 Park avenue, New York, N. Y., manufacturer of cellulose rayon products, has completed plans for new one-story addition to branch mill at Hopewell, to be used for increased capacity. Cost reported over $70,000, with equipment. General erection contract has been let to Claiborne & Taylor, Inc., 117 South Second street, Richmond, Va., and work will be placed under way at once. Carneal, Johnson & Wright, Atlantic Life Building, Richmond, are architects.

Franklin, Ohio—The Logan-Long Company, manufacturer of roofing products, roll roofing, etc., is considering preliminary plan for new addition to local mill, to be one-tory, totaling about 25,000 square feet of floor space, reported to cost over $75,000, with equipment. Company is negotiating for removal of tracks of main line of Cincinnati Northern Railroad, now interfering with new mill site. Main offices of company are at 37 West Van Buren street, Chicago, Ill.

Port Arthur, Ont.—Provincial Paper, Ltd., 388-96 University avenue, Toronto, Ont., manufacturer of manila and other paper stocks, has preliminary plans under way for new addition to mill at Port Arthur, to be one-story, reported to cost about $160,000, including equipment.

Vancouver, B. C.—The London Paper Company, Ltd., 626 West Pender street, Vancouver, manufacturer of paper specialties, plans new one-story plant on local site, reported to cost close to $50,000, including equipment. It is proposed to carry out work during summer.

Winnipeg, Man.—Building Products, Ltd., 240 St. Patrick street, Montreal, Que., has plans under way for new paper mill at Winnipeg, where site has been selected, to be used for the production of building and roofing papers, and kindred heavy paper stocks. It will consist of a main one-story structure and several auxiliary buildings, estimated to cost over $200,000, with equipment. It is understood that bids will be asked soon on general erection contract.

New Companies, Etc.

New York, N. Y.—The Crown-Point Paper Products Company, Inc., New York, has been organized with capital of 100 shares of stock, no par value, to manufacture and deal in paper products of various kinds. New company is represented by Mendes, Krisel & Lessall, Woolworth Building, New York, attorneys.

Brooklyn, N. Y.—The Bush Terminal Waste Paper Collectors, Inc., has been incorporated with capital of $20,000, to deal in waste paper goods. Company is represented by M. Hiram Kagan, 16 Court street, Brooklyn, attorney.

Pulpwood Men To Meet

Joint summer meeting of American and Canadian pulpwood operators and foresters will be held July 31 to August 2, under the auspices of the Northeastern Regional Board of the American Pulpwood Association and of the Woodlands Section of the Canadian Pulp and Paper Association, on the operations of Finch, Pruyn & Co., near Newcomb, N. Y.

The aim of this meeting is to promote advancement in forest management and especially in the efficiency of logging through organized exchange of experiences and of progressive ideas between foresters and loggers of both countries. The attendance will be mostly from the American Northeast and Eastern Canada, but some delegates probably will come also from the Lake States, the Appalachian Region and the South.

The program will consist of (a) papers and discussions, (b) exhibition and demonstration of new logging machinery, equipment and supplies, and (c) inspection of progressive pulpwood operations of Finch, Pruyn & Co.

Arrangements are being made for preparation of papers on new developments and trends in logging technique, with emphasis on mechanization; on barking of pulpwood (from sap-peeling to drum-barking); on practical aspects of silvicultural cutting; and on individual approach to forest protection. The papers will be presented by the representatives of the American Pulpwood Association and of the Woodlands Section, Canadian Pulp and Paper Association. Several other subjects will be brought up for discussion. Brief addresses will be presented by several high officials in the pulp and paper industry.

This meeting should give an excellent opportunity for a representative display and demonstration of machinery, equipment and supplies for the woods operations, especially for the pulp and paper industry.

Delegates will be housed in tents at the Boreas Pond Clearing near Newcomb, N. Y., where the exhibition will also be held, and the demonstration of logging machinery in use can be arranged in the adjoining pulpwood forest. Manufacturers of new logging machinery and equipment who wish to exhibit or demonstrate their products at the meeting are requested to communicate well in advance with H. E. Brinckerhoff, executive secretary, American Pulpwood Association, 220 East 2nd street, New York City, for registration, indicating what exhibits they propose; and with T. H. Crawshaw, Forester, Finch, Pruyn & Co., Inc., Glens Falls, New York, with regard to such arrangements on the ground as may be needed.

The registration fee of $10.00 will cover charges for eight meals during the three days of the meeting, sleeping accommodations in tents and reprints of the papers.

It is planned to devote the morning on Wednesday, July 31, to registration and inspection of logging machinery and equipment and to have business meetings in the afternoon and in the evening. The next day, between short business meetings in the morning and the latter part of the afternoon, some time will be left free for inspection of machinery and equipment and for visiting, and a meeting without a program will be held in the evening. The morning of the last day, August 2, will be given to the inspection of the pulpwood operations of Finch, Pruyn & Co., and the afternoon to inspection of machinery and equipment.

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NEW PACEMAKER
TRANSMISSION BELT WITH THE
Cord-Flex Band
It is the latest development in transmission belt construction.
It has an insert of strong auto tire cords.
It has a new rubber that's tougher and has longer life . . . new tan color.
It gives you distinct transmission advantages.
Special construction reduces slippage and stretch to negligible factors.
Don't buy transmission belting until you've seen it . . . write or ask the "Cincinnati" man for samples.
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MANUFACTURING CO.
THIS CORD-FLEX BAND IN PACEMAKER IS TODAY'S LATEST IMPROVEMENT IN TRANSMISSION BELTING.

FINANCIAL NEWS

New York Stock Exchange

High, Low and Last for Week Ending June 5, 1940

	High	Low	Last
A. P. W.	2	2	2
Armstrong Cork Co.	25¼	23¼	24⅝
Celotex Corp.	5⅜	5⅛	5⅛
Celotex Corp., pf.	49½	49½	49½
Certain-Teed Products Corp.	4	3⅞	3⅞
Certain-Teed Products Corp., pf.	18¼	16	16
Champion Paper & Fibre Co., pf.	102	101	102
Congoleum-Nairn Co.	15⅝	14½	14½
Container Corp. of America	12	10½	10¾
Continental-Diamond Fibre Co.	6	5¾	5¾
Crown-Zellerbach Co.	13⅝	12½	12¾
Crown-Zellerbach Co., pf.	82	80	80¼
Flintkote Co.	12	10⅝	10¾
Robert Gair	2⅝	2½	2½
Robert Gair, pf.	11	11	11
International Paper & Power	12⅞	11	11½
International Paper & Power, pf.	48¼	42¼	45
Johns-Manville Corp.	50½	45¼	45¼
Johns-Manville Corp., pf.	123¾	123½	123¾
Kimberly Clark Corp.	32	30	30
MacAndrews & Forbes, pf.	130	130	130
Masonite Corp.	23¼	22½	22¾
Mead Corp.	9	8½	8½
Paraffine Companies, Inc.	29	28¼	28¼
Rayonier, Inc.	17⅛	15	15
Rayonier, Inc., pf.	28	26	27¼
Ruberoid Co.	13¼	12⅝	12⅝
Scott Paper Co.	35⅞	35⅛	35¼
Scott Paper Co., pf.	102	102	102
Sutherland Paper Co.	22½	22	22⅛
Union Bag & Paper Corp.	11⅜	9⅞	10
United Paperboard Co.	3⅜	3⅜	3⅜
U. S. Gypsum Co.	62	54½	54¾
U. S. Gypsum Co., pf.	167½	167½	167½

New York Curb Exchange

High, Low and Last for Week Ending June 5, 1940

	High	Low	Last
American Box Board Co.	4	4	4
Brown Co., pf.	19	18	18½
National Container Corp.	9⅝	9	9
St. Regis Paper Co.	2¾	2½	2½
St. Regis Paper Co., pf.	55	52	53½
Taggart Corp.	3	3	3

International To Refund Bonds

WASHINGTON, May 29, 1940—An application covering the proposed acquisition by Hudson River Power Corporation of the assets of System Properties, Inc., and the refunding of $14,135,000 of 5 per cent first refunding mortgage bonds, due in 1947, of the International Paper Company was filed today with the Securities and Exchange Commission.

Hudson River Power, formerly the International Hydro-Electric Corporation, and System Properties are subsidiaries in the International Hydro-Electric system.

Hudson River Power proposes to issue $8,000,000 of 3½ per cent first mortgage sinking fund bonds, due in 1958, and $7,000,000 of 4 per cent second mortgage bonds, due in 1962. According to the application, International Paper Company has expressed a willingness to purchase these new bonds of Hudson River Power, contingent upon the consummation of its own refinancing program. The application revealed, however, that there have been some preliminary negotiations through the First Boston Corporation and Smith, Barney & Co., with five insurance companies regarding the sale of the new bonds.

The net proceeds from the sale of the bonds, together with such other funds as are necessary, will be used to retire the $14,135,000 of bonds issued by International Paper Company, and to provide for payment at maturity on Aug. 1, 1940, of $333,000 of 6 per cent refunding mortgage gold bonds, due 1940, issued by the Ticonderoga Pulp and Paper Company and assumed by System Properties.

Hudson River Power will change its no-par-value common stock into common stock having a par value of $50 a share and will issue 40,426 shares to System Properties in exchange for that company's assets. System Properties will then be dissolved and the stock of Hudson River Power will be transferred to International Hydro-Electric system as a liquidating dividend.

West Virginia Files With SEC

WASHINGTON, May 31, 1940—The West Virginia Pulp and Paper Company of New York filed today a registration statement with the Securities and Exchange Commission for 7,411 shares of 6 per cent cumulative preferred stock, $100 par, and 43,920 shares of no-par common stock.

Estimated net proceeds of $1,773,153 from the sale of the stocks will be used by the company for additions to its working capital, for acquisition of its bonds for retirement or elimination of the necessity of further borrowing, to increase cash balances, to build up inventories and for improvements or additions to plants and properties.

Both classes of stock will be offered by the company from time to time either through brokers on the New York Stock Exchange or through dealers or directly to investors, including stockholders of the company. The public offering price will be based upon the prevailing market prices for each class on the New York Stock Exchange. The securities will not be underwritten.

Great Northern Nets $688,249

The Great Northern Paper Company reports for the quarter ended March 31 a net profit of $688,249, equal to 69 cents a share on 997,480 shares of stock outstanding on March 31. No comparison is available with a year ago.

Hercules Declares Dividend

WILMINGTON, Delaware, May 29, 1940—The board of directors of the Hercules Powder Company today declared a dividend of 60 cents a share on the common stock of the company.

This is payable June 25 to stockholders of record at the close of business on June 14.

Now Howell & Don, Inc.

Effective as of June 1, 1940, the firm of David Don Paper Company will consolidate with Walter H. Howell, Inc., and will be known as Howell & Don, Inc., 258 Broadway, New York, N. Y. Telephones: Rector 2-2528-2529.

Fir-Tex Loses $68,039

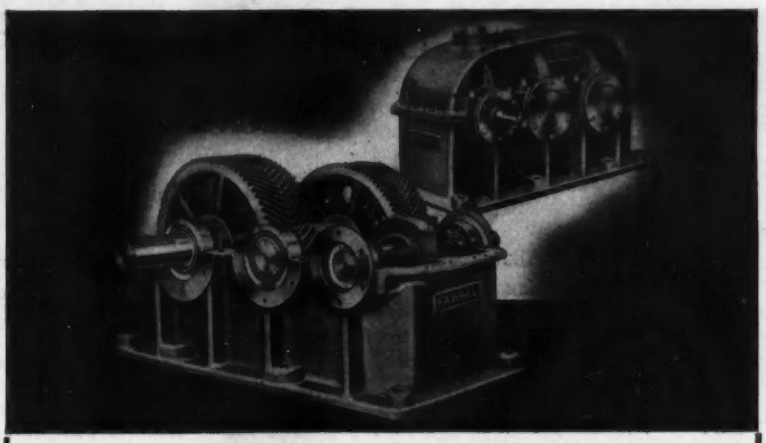
The Fir-Tex Insulating Board Company reports for 1939 a net loss of $68,039, against $115,801 loss in the previous year.

Further Restrictions

WASHINGTON, D. C., June 5, 1940—British Ministry of Supply has issued further restrictive measures on paper use and manufacture, in the form of four orders just announced, according to a report from the office of the American Consulate General, London.

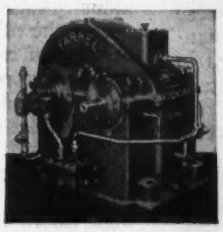
Order No. 13, effective May 27, provides for increases in maximum selling prices for certain papers. Order No. 14, effective June 2 to August 31, eliminates previous quota provisions and provides that no producer may deliver or convert any paper except under license or specific direction by the Minister. This order also restricts the use and disposal of the paper even under license. Order No. 15 prohibits the acquisition of certain grade of waste paper by producers except under license and sets the maximum prices payable.

Order No. 16, which is the most far-reaching of the four, effective May 27, prohibits the issuance of new periodicals or certain types of posters and circulars, and the manufacture of certain types of paper goods. Included in these prohibited paper goods manufactures are: Paper handkerchiefs, serviettes, table clothes, cups, plates, book wrappers, festoons and confetti. The order also restricts the use of other posters and the use of wrapping and packing materials. Retailers have been instructed to refuse to wrap goods unless wrapping is required for their protection. These prohibitions will not apply to production for export.



Double Reduction Unit—Type DR

FARREL GEAR UNITS



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Type SI Gear Unit for high speed and speed increasing service. Especially adapted for connecting Diesel or gas engines to high speed centrifugal pumps and similar service.

Farrel Gear Units have been developed in a complete line for all types of applications and service conditions. Designs include single, double and triple reduction units, speed change units with two or more selective speeds, speed increasing units, right angle units and special drives to meet special requirements. All types and sizes are totally enclosed and self-contained. They are standardized in general design, but with flexibility in detail which permits variation to suit specific conditions of speed, load and service.

Send for Catalog No. 438 giving complete descriptions, specifications, ratings and dimensions.

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FARREL SYKES GEARS — The Gear with a Backbone

Ulla Grass for Paper

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., June 5, 1940—Investigations have been completed recently at the Forest Research Institute, Dehradun, on the possibilities of utilizing ulla grass for the manufacture of packing and wrapping papers. Ulla grass is found in abundance in the sub-Himalayan forest tracts of the United Provinces, according to a report from the American Consulate General, Calcutta.

Packing and wrapping papers from ulla grass have been prepared on a semi-commercial scale at the Forest Research Institute at Dehradun. Though these papers are inferior in strength to imported imitation kraft papers, they are much superior both in strength and quality to the imported brown wrappings and old newspapers, and to the brown wrappings now manufactured in India. These papers also have been found to be quite satisfactory for a good many uses, for which imitation kraft papers are used at present in India, namely, for envelopes, for packing parcels, etc.

Robert Hackworthy Dead

APPLETON, Wis., June 3, 1940—Robert F. Hackworthy, who was associated with the erection of a number of paper mills in the Fox River Valley, died May 30 at his home here after a brief illness. He was 76 years old. Mr. Hackworthy was associated with the Hackworthy Construction Company in earlier years when numerous mills and water power projects were built. He was also associated for fifteen years with O'Keefe and Orbison, paper mill consulting engineers. The funeral took place Saturday, June 1, at All Saints Episcopal Church at Appleton.

Rags and Substitutes in the Dry Felt Industry*

By Audenried Whittemore[1]

Abstract

A discussion of rags and substitutes for use in the dry felt industry is given. A description of the Asplund defibrator, which is used to produce wood fiber as a substitute for rags, is given.

Dry felt for saturating purposes was originally manufactured from as nearly 100 per cent rags as possible and its manufacture provided a market for old rags which at that time could not be used for any other purpose. As the production of dry felt increased and more and more rags were needed, more low grade domestic rags were collected and foreign rags of similar quality were imported mostly from northwestern European countries. Later Japanese rags were collected and supplied to Pacific coast manufacturers of dry felts. Rags were also gathered in many countries where no rags has been previously collected and some came to the United States.

The World War greatly increased the production of dry felt; and rags, during the war period, generally ranged in price from $35.00 to $75.00 per ton. This high price of rags, compared to the prewar price average of about $15.00 per ton, started manufacturers investigating the use of rag substitutes to cheapen the cost of furnish. Many were tried ranging from mineral wool and clay to saw dust and to all kinds of fibrous or semifibrous vegetable substitutes. Mixed and old newspapers were used in the largest amounts because they increased tensile strength and controlled the ultimate percentage of saturation.

All substitutes tried were not real replacers of rags in like percentage either because of excessive shrinkage, lack of essential rag characteristics, such as ability to take saturation, lack of fiber strength, etc. For many years the use of substitutes has constantly increased with a continual decrease in rag consumption per ton of dry felt produced. Better preparation of rag stock, better substitutes, greater knowledge as to the best treatment of substitutes, improved characteristics of saturating materials, improved methods of saturation, etc. have been responsible for increasing the consumption of paper and other substitutes.

Quality

In the early years of felt production many manufacturers thought that the materials used and the consequent supposed quality of the dry felt, had a very substantial influence on the quality of the resulting saturated product. Today practically all manufacturers realize that dry felt (while it must have certain characteristics) is merely a container for the saturant and that it has little if any more effect on the quality of the finished product than a glass container has on the material inside. This opinion has been confirmed within the last few years by U. S. Bureau of Standards tests.

[1] Paper & Industrial Appliances Inc., 122 E. 42nd St., New York, N. Y.

Market Conditions

Although the percentage of substitutes used in dry felt has materially increased, classification and miscellaneous rags still constitute by far the largest percentage of the total raw material furnish. The industry seems to have reached the point of minimum use of rags and maximum use of substitutes, from materials at present available. Rags are a crop gathered but not planted. The only way more can be obtained is by increasing the price as an incentive for the saving, gathering, and sorting of more rags. In spite of the reduced percentage of rags used to produced dry felt, the total consumption of rags in the industry has been increasing because of the increased use of the older types of saturated felt products and because of new uses such as for felt base floor coverings, automobile dampening etc.

It is probable that the production of rags per capita has been declining for some time for various reasons, such as, central heating requiring lighter clothing, cotton replacing woolen, cellulose fabrics replacing cotton, more people living in multiple family dwellings where it is easier to burn old rags and paper than to save them, the general use of the automobile requiring rags to clean and polish, that were formally saved and from many other causes.

Rag importations into the United States have been reduced because many European countries and Japan are manufacturing dry felt for their own use, but this condition has existed for several years. The reduced use of rags per ton of felt produced and the increased use of substitutes has helped to prevent substantially higher rag prices than those that have prevailed, but the major basic condition that has prevented higher rag prices during the last decade has been "poor business". The minor improvement in business in 1937 caused rag price increases before the importation of foreign rags was restricted by the present wars and the improved business this fall together with the reduction in rag importations caused substantial price increases almost overnight. Unless some better substitutes than those used at present are found for rags, which will further reduce rag use per ton of felt, any continued improvement in business will probably be reflected in continued high or higher rag prices subject of course to the usual seasonal fluctuations.

Effect of New Rag Substitutes

A fiber that can be produced from any wood easily available which can be used to replace an equal amount of rags and in substantial percentages to the total rags used per ton of felt produced seems to present the greatest possibility of preventing higher rag prices by helping to keep rag consumption more nearly in line with present rag production. Wood fibers of many different types have been used as substitutes with more or less success but few if any have proven successful as a large replacer of rags while still allowing the other substitutes to be used in

the present amounts. Wood prices are not subject to the wide fluctuations that have occurred in rag prices in the past and which probably will occur to an even greater extent under normal business conditions. Even though both the Japanese and European wars are concluded and the importation of foreign rags resumed, the increased consumption of rags caused by "better business" will probably be reflected in higher average rag prices and greater seasonal fluctuations. The use of a substantial amount of wood fiber at a fairly uniform low cost (caused by an ample supply of wood) and the consequent reduction in the consumption of rags, should have a stabilizing effect on future rag prices. The basic rag price should be held to more reasonable figures and seasonal variations should be reduced.

Asplund Defibrator

This patented equipment provides a means of producing a wood fiber (from green wood of almost any kind) with qualities allowing its use as a replacer of rags, and at a low conversion cost. The use of this fiber will aid in equalizing the unbalanced condition of supply and demand for rags which will probably occur under normal business conditions. With subnormal business conditions and consequent low prices of rags and substitutes it still provides a new substitute and a replacer of rags at coniderably less cost than the average price of rags over the past decade.

Defibrator fiber is a direct replacer of rags. If a ton of defibrator fiber is used, approximately a ton less of rags can be used and practically all other substitutes can be used in the same or greater amounts. All essential qualities of the dry felt will be as good or better than if no fiber has been used. More defibrator fiber can be used in light weight felts than in heavy weight felts, while still retaining sufficient flexibility to meet saturating plant operating conditions.

The maximum percentage of defibrator fiber that can be used and the consequent maximum percentage of rags that can be omitted (while still retaining all essential qualities in the dry felt) is not known at present, but mill use over many months has proven that in a normal mill producing dry felt for saturating purposes, an average of 15 per cent of fiber for all felts produced can be used. The felts produced are either as good or better, in all essential qualities, than the same felts without defibrator fiber.

Practically any type of wood can be used including the bark. Naturally different woods produce different fibers varying in length, fineness, etc. and it is necessary to balance cost of wood and the consequent cost of fiber with quality of fiber produced. Green wood including bark will generally have from 40 to 60 per cent of fiber, the balance being water. The harder woods weigh more per cord than the softer woods consequently give a greater fiber yield. The fiber produced from hardwood is shorter than the softwood fiber but the larger yield per cord and the resulting lower cost per ton of fiber will often make it advisable to use hardwoods instead of softwoods.

The yield of moisture-free fiber per 128 cubic feet cord of wood will vary from slightly less than one ton to about a ton and a third, depending on the kind of wood used. The yield of moisture-free fiber from green wood is almost in proportion to the weight of the wood per cord. The cost of fiber and the relative usability of different woods is largely influenced by the cost of the wood per ton and not per cord. The cost of converting cord wood into fiber ready to be used as a replacer of rags is approximately the same as the cost of converting rags, i.e. the cost of chipping and defibering wood is about the same as the cost of cutting and beating rags. Defibrator fiber requires no beating if properly produced.

The quality of wood fiber and the amount that can be used as a replacer of rags is of course primarily dependent on the kind of wood used and the quality of the resulting fiber. This is not the only factor, however, because the operation of the defibrator has a substantial influence on the quality of the fiber produced. Changing the defibrator conditions will produce fibers of varying characteristics from the same kind of wood. Almost any wood properly defibered can be used as a replacer of rags in the manufacture of dry felt.

The same equipment used for defibering wood chips can also be used for defibering other fibrous materials such as wheat, flax and other straws, corn stalks, etc. Naturally the possible use of such materials will depend on the usability of the fibers, yield per ton of raw material, availability, and cost of the raw material.

Intensive Training of Employees

In stepping up production to handle unusual demands from certain domestic and foreign markets, a number of industries today are faced with a serious shortage of skilled labor. To meet this situation management must find some way to train men quickly. Experience from the last World War period showed that short-cuts in training are incompatible with production efficiency and product integrity. As then, management today believes that the only satisfactory answer is to refine or streamline the training methods, cut all waste and lost motion, and in general step up the tempo without sacrificing the essentials of good training. The details of how industry is doing this are given in a new report, "Intensive Training of Industrial Employees," issued by the Policyholders Service Bureau of the Metropolitan Life Insurance Company.

The reports points out that some of the initial steps to be taken in meeting this problem include accurate determination of a company's labor requirements, careful analysis of the employee's qualifications coupled with proper placement, and better organization of labor sources. Reorganization of the skilled man's job, separating the less skilled phases of the work for which new men can be more quickly trained, has proved effective in speeding up the training. Another approach is to improve the quality of the training by carefully meshing the essential training material with a detailed analysis of the production job. Individualizing the training as much as possible so as to give each employee the minimum instruction needed has been found much less wasteful than a program based on average ability.

These are but a few of the devices that industry is employing to meet the emergency problem of training for skilled jobs as disclosed in the Metropolitan's study. Copies of the report are available from the Policyholders Service Bureau, Metropolitan Life Insurance Company, One Madison avenue, New York.

PAPER
TRADE JOURNAL
Title Reg. U. S. Pat. Off.

Henry J. Berger
EDITOR

Vol. 110 June 6, 1940 No. 23

COMING EVENTS IN PAPER INDUSTRY

TECHNICAL ASSOCIATION OF THE PULP AND PAPER INDUSTRY, Fall Meeting, Olympic Hotel, Seattle, Wash., August 20-23.

NEW ENGLAND SECTION. Technical Association of the Pulp and Paper Industry—Third Friday of each month at the Roger Smith Hotel, Holyoke, Mass.

DELAWARE VALLEY SECTION. Technical Association of the Pulp and Paper Industry—Second Friday of each month at the Engineers Club, Philadelphia, Pa.

LAKE STATES SECTION. Technical Association of the Pulp and Paper Industry—Second Tuesday of each month at the Conway Hotel, Appleton, Wis.

KALAMAZOO VALLEY SECTION. Technical Association of the Pulp and Paper Industry—First Thursday of each month at the Park, American Hotel, Kalamazoo, Mich.

AMERICAN PULP AND PAPER MILL SUPERINTENDENTS ASSOCIATION, Annual Convention, Netherland Plaza Hotel, Cincinnati, Ohio. June 18-20.

NATIONAL SAFETY COUNCIL, PAPER AND PULP SECTION, Annual Meeting, Stevens Hotel, Chicago, Ill. October 7-11.

ARMAMENT AND TAXES

National defense on an unprecedented scale seems essential for the adequate protection of the United States. In the rapid development of economic pressure during the past decade which is generally agreed to have been the primary force that has created nationalistic trends which have expanded to become the strong driving power behind the Nazi and Fascist forces, it is necessary for this country to take full measures to provide for its protection. Unfortunately, when international agreements are dishonored, the only resource remaining is that of armed force.

The United States now has no alternative, in the opinion of leading men who are in fullest possession of the facts of the potential dangers confronting the nation, and as armed force is rapidly changing a long established world economy, so may the projected national defense program be expected to cause great and permanent effects upon this country. The danger of the invasion to the country is, of course, remote, but as Germany has already closed American markets in Scandinavian countries, Holland, and Belgium, the defeat of England and France would mean at least a substantial loss of our export markets which amount to more than $3,000,000,000 a year.

In the last seven years the United States has spent $13,750,000,000 for relief and $500,000,000 for an army and navy air service of 5,000 airplanes. If about one-half of the expenditures for various pump priming and relief purposes had been used for the production of airplanes, an authority points out, the air arm of the national defense would have 100,000 airplanes at a cost of about $7,000,000,000. But, as the United States has long favored the building of surface ships, the importance of a fleet for the air has been long neglected. In the opinion of today the trend of government spending is away from the social and economic experiments in which large expenditures have been spent, to provide a huge program of national defense. As the Roosevelt Administration has made certain commitments with South American countries, the program now presented to Americans may be expected to include more than would be required to defend the United States and its territories. So broad and costly a defense plan may be necessary to insure peace and security, but it cannot fail to make many changes in our national economy.

Although the famous mobilization plan or "M" plan as it is commonly called, developed by the Army and Navy to provide for the complete mobilization of all our national resources, may not be utilized at the beginning of the national defense program now being discussed, the "M" plan will unquestionably be used if need for it should be considered desirable. The success of Germany is attributed to it; the weakness of England and France to failure to utilize it. The "M" plan is simply a detailed program to coordinate industry and labor, to make fullest use of men and materials. A modification or simplification of some such plan is, of course, essential for the successful accomplishment of a huge and complex undertaking within the shortest period of time.

The "M" plan is a refinement or perfectment of the control system exercised by the various nine emergency agencies in effect during our participation in the former world conflict. Although this identical system of national emergency work is not expected to be introduced now under its former name, a similar and more efficient plan must inevitably be followed to prevent waste and achieve results deemed essential. And huge expenditures for armaments cannot be made without higher taxes and the higher taxes necessary will tend to lower the present American standard of living. A serious result of heavy spending for defense will, some economists point out, prove a heavy burden which all of us must proportionately share. The future tax burden on business is expected to be a serious one.

While no one questions the desirability of taxation for the support of essential government functions, the tax load has increased to a point where it represents one of the principal deterrents to business recovery and reemployment, states the Guaranty Trust Company of New York in the current issue of *The Guaranty Survey*, its monthly review of business and financial conditions in the United States and abroad. In a study undertaken to determine the real significance of the tax burden the Guaranty Trust Com-

pany states that, "The inquiry reveals, first, that the ratios of total direct taxes to total net income before taxes for the groups of corporations last year were as follows: 122 industrials, 38 per cent; 27 utilities, 50 per cent; and the 149 companies, 43 per cent. The 29 industrials and 17 utilities reported taxes equal to 50 per cent, or more of net income before taxes are thus seen to have paid out to tax collectors than they had left for distribution to stockholders and reinvestment in the business. Even more surprising, perhaps, are the facts disclosed as to the relation between taxes and number of employees. Direct taxes per employee were as follows: 49 industrials, $315.16 utilities, $751; and the 65 companies, $424.

Armstrong Starts Paper Mill Division

The Armstrong Machine Works, Three Rivers, Mich., makers of steam traps and other specialties, announces the appointment of Frederick G. Stamm, well known authority on paper drying, to head a newly organized paper mill division of the company. The announcement further advises that Mr. Stamm and Armstrong engineers have pooled their experience and resources to design and build advanced types of equipment for controlling drying on and drainage of paper machines.

It is reported that during the past three years, numerous installations have been made and all equipment and methods are said to be thoroughly proven. The new division of Armstrong Machine Works, according to the announcement, is prepared to render specialized paper mill engineering service in all parts of the United States and Canada, and includes application of (1) Armstrong-Stamm Graduated Drier Temperature Control, (2) Armstrong-Stamm Sheet Moisture Control, (3) The Armstrong-Stamm Drainage System, and application of various individual products in the Armstrong-Stamm Line. The announced aim of the company is to offer the most advanced and most comprehensive service available to the paper industry today.

Crystal Increases Insurance

The Crystal Tissue Company, of Middletown, Ohio, manufacturer of tissue papers, has increased at its own expense the group life insurance of approximately 250 men and women in its employ, bringing the total in force on company employees from about $260,000 to more than $400,000. Announcement of the additional insurance was made by E. E. Grant, president of the company.

The plan in general, which includes accident and health coverage, is being underwritten by the Metropolitan Life Insurance Company on a cooperative basis whereby the employees contribute fixed amounts and the employer bears the balance of the net cost.

With the additional insurance of $500 which each employee receives, general workers are now covered for $1,500 life insurance, while male employees in that classification also receive benefits of $12 a week in case of sickness or non-occupational injury and female employees $7.50 a week.

Also included in the group program is visiting nurse care and the distribution of pamphlets on health conservation and disease prevention.

Production Ratio Report

These statistics are based upon paper production reports to the American Paper and Pulp Association.

COMPARATIVE MONTHLY SUMMARIES[1]

Months	1940	1939	1938	1937	1936	1935	1934
January	90.2%	77.5%	63.9%	90.3%	76.1%	65.8%	.....
February	86.2%	81.7%	68.7%	90.1%	77.9%	70.0%	.....
March	84.0%	84.0%	69.6%	90.3%	76.0%	70.5%	.....
April	86.4%	82.9%	68.3%	92.1%	82.3%	70.0%	.....
May	.....	80.2%	69.0%	90.6%	81.6%	69.4%	.....
June	.....	79.7%	66.0%	87.3%	80.7%	72.3%	.....
July	.....	75.2%	72.0%	81.8%	77.3%	64.9%	.....
August	.....	82.9%	77.2%	82.9%	81.5%	70.9%	.....
September	.....	88.7%	76.3%	78.6%	80.5%	71.9%	58.2%
October	.....	96.6%	82.5%	73.5%	87.6%	75.6%	64.7%
November	.....	97.2%	79.6%	61.9%	88.0%	75.3%	61.7%
December	.....	91.1%	74.4%	54.5%	85.9%	71.2%	59.6%
Year Average	.....	84.9%	72.3%	80.6%	81.3%	70.5%	.....
First 21 weeks	87.8%	81.7%	67.9%	90.7%	78.8%	69.0%	.....

COMPARATIVE WEEKLY SUMMARIES[1]

CURRENT WEEKS, 1940		CORRESPONDING WEEKS, 1939	
April 20	88.8%	April 22	82.7%
April 27	91.3%	April 29	84.3%
May 4	91.2%	May 6	83.6%
May 11	90.6%	May 13	82.0%
May 18	92.6%	May 20	81.3%
*May 25	94.0%	May 27	79.9%

The following statistics show the number of mills reporting by ratio groups:

	Number of Mills Reporting—Current Weeks					
Ratio Limits	April 20, 1940	April 27, 1940	May 4, 1940	May 11, 1940	May 18, 1940	May 25, 1940
0% to 50%	49	43	41	44	39	34
51% to 100%	246	252	248	244	235	214
Total Mills Reporting	295	295	289	288	274	248

PAPERBOARD OPERATING RATIOS

Per cents of operation based on "Inch-Hours" reported to the National Paperboard Association.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July
1936	62%	67%	67%	70%	69%	70%	69%
1937	80%	86%	86%	88%	85%	77%	66%
1938	54%	60%	61%	57%	58%	56%	57%
1939	60%	67%	71%	69%	64%	67%	63%
1940	71%	70%	69%	70%	....	....	....

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1936	75%	78%	82%	80%	74%	72%
1937	74%	69%	65%	55%	45%	73%
1938	66%	66%	70%	65%	59%	61%
1939	72%	74%	84%	81%	71%	70%
1940	....	....	....	....	....	....

Week end. April 20, 1940—72%
Week end. April 27, 1940—75%
Week end. May 4, 1940—77%
Week end. May 11, 1940—74%
Week end. May 18, 1940—76%
Week end. May 25, 1940—79%

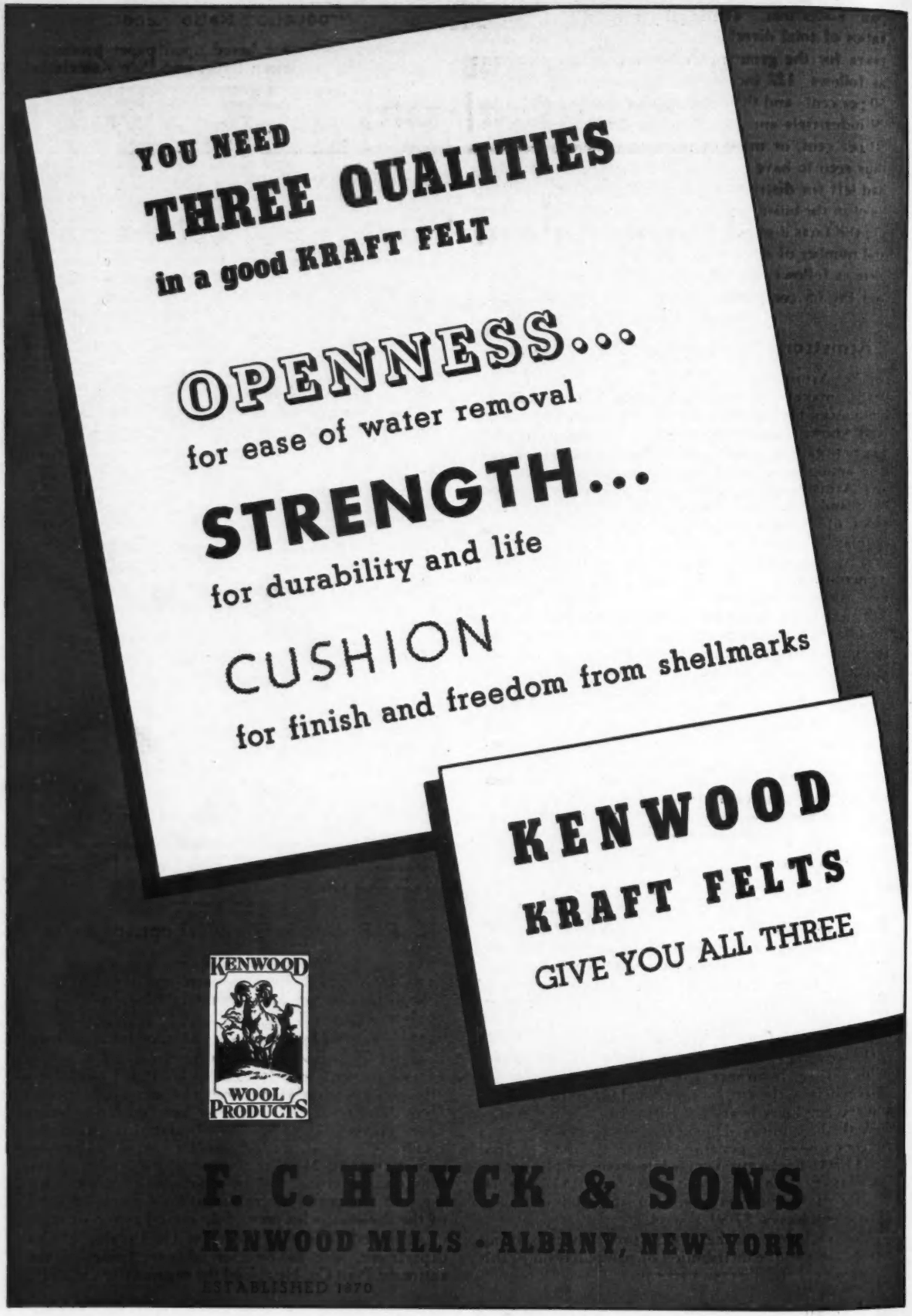
[1] Production-capacity ratios are based upon six-day capacity ratings which are adjusted periodically to correspond with the ratings reported by individual companies. Ratios are subject to revision until all reports are received.
* Preliminary figure.

C. F. Brown to Head Cellophane Sales

The du Pont company has announced the resignation of Oliver F. Benz as director of sales of the cellophane division, who retires from active business on June 1.

Mr. Benz has been in charge of sales for cellophane cellulose film since 1924 when American manufacture of this product was started by du Pont. Under his direction the market for cellophane was developed from its original limited use as wrap on candy boxes to a universally accepted material for packaging hundreds of products in a wide range of industries.

Successor to Mr. Benz as director of sales of the cellophane division will be Clarence F. Brown, for the past ten years general assistant director of sales of the division, who previously served as the director of sales and division manager of the Pyralin articles department, also as director of advertising of the entire du Pont Co. He joined the organization in 1919.


YOU NEED
THREE QUALITIES
in a good KRAFT FELT
OPENNESS...
for ease of water removal
STRENGTH...
for durability and life
CUSHION
for finish and freedom from shellmarks
KENWOOD
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Section of the
Technical Association of the Pulp and Paper Industry

Edited by Ronald G. Macdonald, Secretary

Instrumentation Studies. XXXVI

The Gurley-Hill S-P-S Tester

By The Staff of The Institute of Paper Chemistry

Abstract

The mechanical construction and operating procedure of the Gurley-Hill S-P-S tester have been studied. A number of printing and other related papers have been tested by means of the softness, porosity, and smoothness attachments of the Gurley-Hill S-P-S instrument and also by means of the Bekk smoothness tester, the Gurley R. D. smoothness tester, the Gurley densometer, and the Federal compressibility gage. For these samples, the Gurley-Hill S-P-S tester measured in a reproducible manner certain properties of paper similar to those measured by the Bekk smoothness tester and the Gurley densometer. However, poor correlation was found between S-P-S softness and Federal compressibility and between S-P-S smoothness and Gurley R. D. smoothness.

The objectives of this study were, first, to investigate the influence of certain factors present in the operating procedure of the Gurley-Hill S-P-S tester on the instrumental readings obtained and, second, to compare the Gurley-Hill S-P-S tester with other instruments which supposedly measure similar properties of paper. No attempt was made to determine the validity of the manufacturer's claim that this instrument may be used to predict the printing quality of paper *(1)*. Undoubtedly, the paper qualities tested by the Gurley-Hill S-P-S tester have a close connection with printability. However, as was pointed out in previous Instrumentation Reports *(2)*, the printing behavior of paper depends upon a number of interrelated properties such as smoothness, gloss, formation, porosity, ink receptivity, etc. Most of these, as generally conceived, are not fundamental characteristics of paper, but merely arbitrary qualities which are defined by the procedures used in measuring them. It may be that these properties will have to be defined more accurately and their relative importance determined before a satisfactory correlation between instrumental measurements and the printability of paper can be established. In the light of these considerations, it was not considered within the scope of this investigation to develop a technique for testing the correlation between instrumental readings and printing behavior.

Description of Instrument

The Gurley-Hill S-P-S tester was designed to measure the softness (or compressibility), porosity, and smoothness of paper. In each case, the measurement consists of observing the rate of air leakage over or through the paper specimen. Uniform air pressure is supplied by means of an inverted hollow piston floating freely in a cylinder partly filled with oil, Figs. 1 and 2. The air is forced downward, through an open central tube, to the upper orifice plate against which the sample is clamped. Interchangeable lower test plates provide for measuring softness, porosity, or smoothness. Uniform clamping pressure is provided by means of a lever; one end supports the lower plate and the other end supports weights calibrated to give the desired pressure on the paper. The rate of air leakage over or through the specimen, depending upon the property being measured, is determined by timing the movement of the graduations on the piston as they pass the upper edge of the outer cylinder. Except for the interchangeable lower plates and the lever arm, the instrument is similar to the Gurley Improved Densometer.

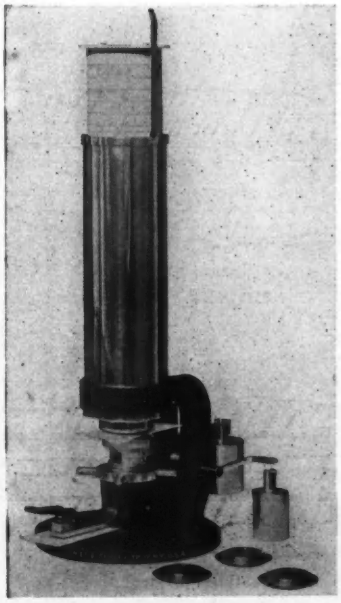


FIG. 1.
Gurley-Hill S-P-S Tester

Operation of Instrument

Softness test. The lower plate for this test is solid and has a raised annular ring, from which four polished steel plugs project. These plugs are 0.002 of an in. high and 0.1 of an in. in diam. and are evenly spaced around the annulus. The paper sample is punched and inserted between the upper and lower plates. The plugs on the lower plate are forced against the paper surface. Air leakage takes place between the paper surface and the lower plate. The softer the paper, the greater the depression of its surface by the plugs and therefore the slower the air leak. The pressure applied by the plugs depends upon the weight hung on the lever arm. A 0.34-lb. weight exerts a pressure of 300, and a 2-lb. weight, a pressure of 1300 lb. per sq. in. against the specimen. The pressure is not directly proportional to the external force applied to the outer end of the lever arm, because the weight of the arm itself is sufficient to create a certain pressure which is additive to that resulting from the external force.

It seemed advisable to determine whether the buoyancy effect of the oil in which the piston floats was sufficient to influence the experimental results. For this purpose, the proportionality of the observed time to the volume of air flow was investigated. Table I presents individual observations for ten specimens of a machine-finished book paper. These results indicate that the increase in buoyancy as the piston became immersed further was not sufficient to affect the air pressure and, hence, the rate of air leakage. They also indicate that the depression of the paper surface was constant for a given specimen and did not gradually increase during the test period. Apparently actual readings for the softness test may be made for some volume other than 100 cc. and may then be corrected to the standard volume.

In the softness test, it is presumed that all the air passes through the punched hole in the paper and escapes between the paper surface and the lower plate in which the plugs are mounted. However, it is possible that the specimen under test is not quite flat (surface may be cockled or wavy) and hence some air leakage may occur between the upper plate and the paper.

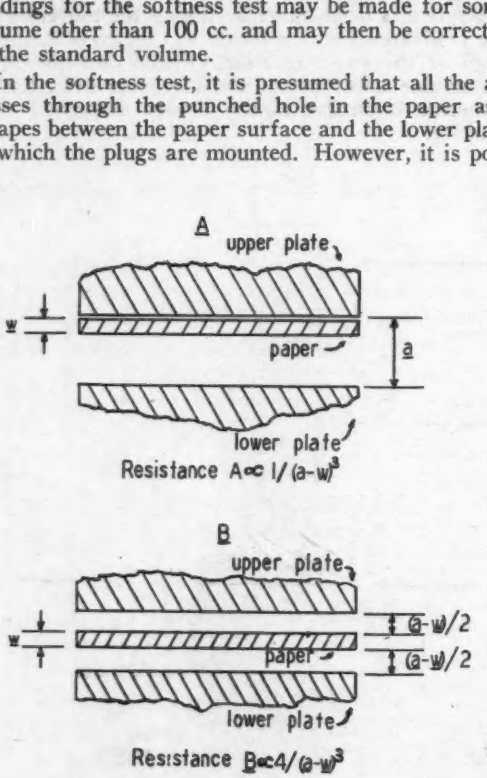


FIG. 3.
Variation of Resistance to Air Flow in Softness Test Due to Position of Specimen

The presence of these two avenues of air leakage would cause the observed time for the test to be greater than that for the ideal case where the specimen lies flat against the upper plate, inasmuch as the resistance to the flow of air between two plane surfaces is inversely proportional to the third power of the distance between the planes. Figure 3 illustrates two hypothetical positions of the paper specimen during the softness test: A, the specimen is flat against the upper plate and B, the specimen is located halfway between the two plates. In A, the theoretical position, the resistance to the air flow is inversely proportional to the third power of the difference between the distance from the lower to the upper plate a and the thickness of the paper w, or $1/(a-w)^3$. In the extreme case B, the resistances of the two avenues of air escape are in parallel and are each proportional to $1/[(a-w)/2]^3$. The resultant resistance is proportional to $4/(a-w)^3$, i.e., four times that of A. Thus, if the specimen does not lie flat against the upper plate, the softness measurement may not consist solely of determining the rate of air flow through the open spaces surrounding the lower test plate plugs but may be influenced by the amount of air leakage between the upper plate and the paper specimen.

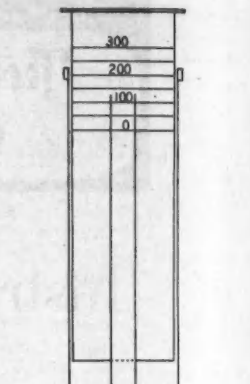


FIG. 2.
Schematic Drawing of Gurley-Hill S-P-S Tester.

It seems probable that in some types of paper, lateral porosity and smoothness would also affect the softness test to some extent, inasmuch as these factors help to determine the relative amounts of air which flow through and across the specimen. Caliper would need to be considered also, because, for two sheets having the same *percentage* compressibility but different thickness, the surface of the thicker sheet would be depressed to a greater degree by the plugs

TABLE I.—GURLEY-HILL S-P-S SOFTNESS
Proportionality of Observed Time to Volume of Air Flow.
Individual Tests on Machine-Finished Book Sample A.
300 lb. per sq. in. Contact Pressure.

	50-cc. flow		100-cc. flow		150-cc. flow	
Specimen	Time in sec.	Ratio to 100-cc. flow	Time in sec.	Ratio to 100-cc. flow	Time in sec.	Ratio to 100-cc. flow
1	15.6	0.484	32.2	1.00	48.5	1.51
2	16.0	0.519	30.8	1.00	45.7	1.49
3	14.8	0.508	29.1	1.00	44.0	1.51
4	16.2	0.500	32.4	1.00	49.2	1.52
5	16.6	0.492	33.8	1.00	49.8	1.47
6	14.0	0.493	28.4	1.00	43.5	1.53
7	14.8	0.522	28.4	1.00	43.5	1.53
8	14.0	0.500	28.0	1.00	42.8	1.53
9	14.3	0.516	27.7	1.00	42.8	1.54
10	14.1	0.497	28.4	1.00	43.7	1.54
Average	15.0	0.503	29.9	1.00	45.4	1.52
Theoretical ratio		0.500		1.00		1.50

than the surface of the thinner one. In the comparison of thick, soft specimens, it is possible that all specimens involved would be compressed to such an extent that nearly the whole area of the lower annulus would intimately contact the lower surfaces of the specimens; in this case the measurements would be greatly influenced by smoothness and lateral porosity.

The manufacturer recommends using a pressure of 300 lb. per sq. in. on the test plate plugs for newsprint and other soft papers, and 1300 lbs. per sq. in. for hard papers. As Table II demonstrates, the softness ranking of a group of paper samples is disturbed when the contact pressure is changed. With the thought that the percentage change in the softness value on increasing the contact pressure from 300 to 1300 lb. per sq. in. might be a more accurate indication of compressibility than the softness reading at a given pressure, an attempt was made to correlate this relationship with more direct measurements of compressibility obtained with the Federal compressibility gage. No systematic correlation seemed to exist, however, and so this attempt was abandoned.

Porosity test. For the porosity test, a perforated lower plate having a plane annular ring, stated to be optically flat, is used. Air escapes downward through an area of 1 sq. in. of paper. The specimen is clamped between the 2 plates, either by using the capstan screw or the lever arm with the 2-lb. weight. The porosity value is expressed in terms of seconds per 100 cc. of air flow.

The buoyancy effect was studied, using an approach similar to that employed in the softness investigation, by determining the proportionality of the observed time to the volume of air flow. At the same time, the effect of clamping pressure was determined. In the porosity test, any leakage of air which does not take place downward through the specified area has the effect of reducing the time interval which is measured. In Table III, which presents data both on the buoyancy effect and on the effect of clamping pressure, it is shown that, as the pressure was reduced, the observed time interval became shorter, indicating that lateral air leakage had become greater. As was anticipated, however, the time interval in each case was almost directly proportional to the volume of flow.

To determine the magnitude of the lateral air leakage, a number of samples were tested, first by the normal procedure, then under conditions in which the clamped edges were carefully sealed. For each determination in the latter series, a soft mixture of beeswax and rosin was melted and applied to the warmed surface of the lower porosity plate. The specimen, cut slightly smaller than the outer circumference of the contact rings, was placed between the melted mixture and the previously warmed upper plate. Pressure was applied immediately and the seal allowed to cool and set. By this procedure, the sealing material was forced through and around the extreme outer portion of the specimen. Thus, both the edge of the paper and the metal to metal contact areas were perfectly sealed. In these tests the air was forced downward through the paper and could not escape either between the metal-paper surfaces or laterally through the specimen itself.

TABLE II.—EFFECT OF CONTACT PRESSURE ON GURLEY-HILL S-P-S SOFTNESS READING

Paper	Average reading at 300 lb. per sq. in. pressure: Time in sec.	Average reading at 300 lb. per sq. in. pressure: Comparative ranking	Average reading at 1300 lb. per sq. in. pressure: Time in sec.	Average reading at 1300 lb. per sq. in. pressure: Comparative ranking	Ratio of 1300 lb. reading to 300 lb. reading
Mimeo A	37.8	1	280.0	1	7.41
M.F. book A	29.9	2	46.1	3	1.54
Offset A	26.1	3	81.5	2	3.12
S.C. book A	23.9	4	35.9	6	1.50
Coated book A	22.6	5	36.2	5	1.61
Sulphite bond A	19.2	6	45.4	4	2.42

TABLE III.—GURLEY-HILL S-P-S POROSITY—EFFECT OF CLAMPING PRESSURE AND THE PROPORTIONALITY OF OBSERVED TIME TO VOLUME OF FLOW

Machine finished book—Sample A.
All porosity values represent the average of ten readings.

Method of applying clamping pressure	Average time in sec.: 50-cc. flow	Average time in sec.: 100-cc. flow	Average time in sec.: 150-cc. flow	Ratio to time for 100-cc. flow: 50-cc. flow	Ratio to time for 100-cc. flow: 100-cc. flow	Ratio to time for 100-cc. flow: 150-cc. flow
Pressure applied by lever arm and 2 lb. weight—40.8 lb. per sq. in.	70.4	141.8	212.7	0.496	1.00	1.50
Pressure applied by clamping tight hand screw	67.3	135.0	206.8	0.498	1.00	1.53
Pressure applied by lever arm and 0.34 lb. weight—9.4 lb. per sq. in.	65.9	131.7	198.7	0.500	1.00	1.51
Pressure applied by weight of lever arm only—3 lb. per sq. in.	64.0	130.7	196.9	0.490	1.00	1.51
Theoretical ratio	...	....	....	0.500	1.00	1.50

The higher values of the sealed porosity tests (*see* Table IV) indicate that a considerable volume of air escaped laterally during the normal porosity evaluation. However, the increase in the porosity value caused by sealing was comparatively small for very smooth papers, such as supercalendered and coated book.

Rapid smoothness test. In the Gurley-Hill S-P-S rapid smoothness test, eight thicknesses of paper are perforated and held between the upper orifice plate and a solid lower plate having a plane annular ring, stated to be optically flat. The test does not differentiate between felt and wire side smoothness but gives an average value for sixteen surfaces. By means of the lever arm, unweighted, a pressure of 3 lb. per sq. in. is provided over a contact area of 1 sq. in.

The smoothness value is defined as the time in seconds for 50 cc. of air to pass. For rapid routine control testing of smoothness, a single sheet may be folded 8-ply. The pad thus formed is perforated and tested without unfolding. For more accurate work, eight separate plies should be tested.

The following aspects of the smoothness procedure were investigated: (1) Proportionality of observed time to volume of air flow; (2) proportionality of observed time to number of plies used in each observation; (3) effect of orientation of wire and felt sides of adjacent plies; and (4) effect of grain orientation in adjacent plies.

Specimens of a machine-finished book paper were

TABLE IV.—SEALED GURLEY-HILL S-P-S POROSITY TESTS

All values represent the average of ten readings

Paper	Normal S-P-S porosity sec.	Sealed S-P-S porosity sec.	Increase in normal porosity, %
Newsprint A	18.4	23.8	29.4
Mimeo B	47.1	59.7	26.7
Offset A	88.5	116.9	32.1
M.F. book A	141.8	183.1	29.2
S.C. book A	243.4	272.0	11.8
Sulphite bond B	945.1	1527.0	61.6
Coated book C	2500.0	2460.0	...
Coated book A	2639.0	2891.0	9.6

used in the investigation of these variables. The results are listed in Tables V and VI.

Roughly speaking, the observed time in the smoothness test was found to be directly proportional to the volume of air flow. The fact that the proportionality was less exact than in the softness and porosity tests might have been due to gradual flattening of the paper surfaces during the test period as a result of the contact pressure.

TABLE V.—GURLEY-HILL S-P-S RAPID SMOOTHNESS

Machine finished book—Sample A
Each value represents average of ten readings
Average time in sec.

No. of sheets	All sheets felt side up			All sheets wire side up			Alternate sides up		
	25-cc. flow	50-cc. flow	75-cc. flow	25-cc. flow	50-cc. flow	75-cc. flow	25-cc. flow	50-cc. flow	75-cc. flow
1	862.0	1816.0	2762.0	....	....	....	....	....	....
4	179.4	386.6	586.8	198.5	410.3	618.1	190.4	395.7	595.6
8	100.7	211.1	319.1	105.8	218.8	330.2	99.0	204.9	314.9
12	66.2	144.2	216.8	73.4	154.1	233.5	68.0	144.8	221.0

Direct proportionality of observed time to volume of air flow
(Ratio to average time observed at 50 cc. flow)

No. of sheets	All sheets felt side up			All sheets wire side up			Alternate sides up		
	25-cc. flow	50-cc. flow	75-cc. flow	25-cc. flow	50-cc. flow	75-cc. flow	25-cc. flow	50-cc. flow	75-cc. flow
Theoretical ratio—	0.5	1.0	1.5	0.5	1.0	1.5	0.5	1.0	1.5
1	0.475	1.0	1.52	....	..	...	....	..	...
4	0.464	1.0	1.52	0.484	1.0	1.51	0.482	1.0	1.51
8	0.476	1.0	1.51	0.483	1.0	1.50	0.483	1.0	1.54
12	0.469	1.0	1.50	0.475	1.0	1.51	0.470	1.0	1.53

Inverse proportionality of observed time to number of sheets
(Ratio to average time for 8 sheets)

No. of sheets	Theoretical ratio	All sheets felt side up			All sheets wire side up			Alternate side up		
		25-cc. flow	50-cc. flow	75-cc. flow	25-cc. flow	50-cc. flow	75-cc. flow	25-cc. flow	50-cc. flow	75-cc. flow
1	8.0	8.56	8.60	8.65	...	...	...	...	...	...
4	2.0	1.79	1.83	1.84	1.88	1.87	1.87	1.92	1.93	1.89
8	1.0	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
12	0.67	0.66	0.68	0.68	0.69	0.70	0.70	0.69	0.71	0.70

Effect of orientation of wire-felt sides of adjacent sheets
(Ratio to average time for alternate (folded) arrangement)

No. of sheets	Theoretical ratio	All sheets felt side up			All sheets wire side up			Alternate sides up		
		25-cc. flow	50-cc. flow	75-cc. flow	25-cc. flow	50-cc. flow	75-cc. flow	25-cc. flow	50-cc. flow	75-cc. flow
4	1.00	0.94	0.98	0.98	1.04	1.04	1.04	1.00	1.00	1.00
8	1.00	1.01	1.03	1.01	1.07	1.07	1.05	1.00	1.00	1.00
12	1.00	0.97	1.00	0.98	1.08	1.06	1.06	1.00	1.00	1.00

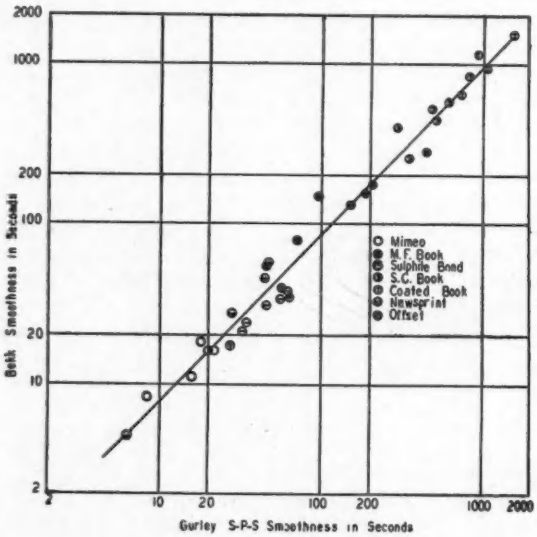


FIG. 4.
Correlation of Gurley S-P-S Smoothness and Bekk Smoothness

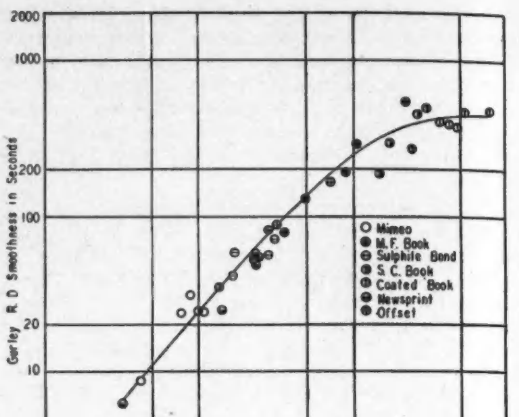


FIG. 5.
Correlation of Gurley S-P-S Smoothness and R. D. Gurley Smoothness

TABLE VI.—EFFECT OF GRAIN ORIENTATION IN ADJACENT SPECIMENS ON GURLEY-HILL S-P-S SMOOTHNESS

Machine-finished book—Sample A
Each value represents an average of ten readings

Paper	Grain parallel for all sheets sec.	Grain alternately at right angles sec.
Mimeo E	8.5	8.3
M.F. book A	189.9	191.5
Coated book D	763.0	751.0

The observed time in the smoothness test was approximately inversely proportional to the number of plies tested at one time. However, as shown below, the ratio of the time observed for a given group of sheets to the time observed for the standard test of eight sheets approximated the theoretical ratio for $n+1$ sheets more closely than the theoretical ratio for n sheets. Thus, when 4 plies are tested simultaneously, instead of eight, the time interval is increased by the factor $(8+1)/(4+1)$ or 1.8, more nearly than by the factor, 8/4 or 2.0.

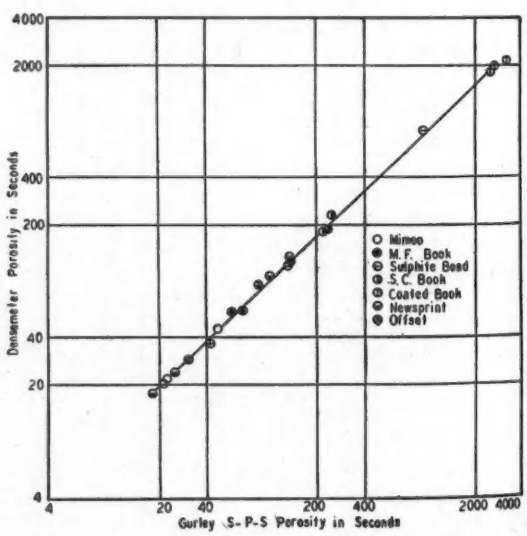


FIG. 6.
Correlation of Gurley S-P-S Porosity and Densometer Porosity

Number of plies tested simultaneously	Average observed ratio to time for 8 plies	Theoretical ratio of $(n+1)$ plies to 8 plies	Theoretical ratio of (n) plies to 8 plies
1	8.60	4.5	8.0
4	1.87	1.8	2.0
8	1.00	1.0	1.0
12	0.69	0.69	0.67

For papers within the ordinary range of smoothness, the testing of 8 plies simultaneously yields an average and reproducible instrumental reading. For very smooth papers, the number of specimens tested at one time may be increased to twelve or perhaps even sixteen and the volume of air flow reduced to 25 cc. The results thus obtained can be referred with small error to standard conditions. However, for accurate work, conversion factors should be determined for each class of paper.

Orientation of both the sides and direction of grain of adjacent specimens tested simultaneously apparently had no effect on the smoothness values obtained. In grouping a number of specimens to be tested simultaneously, precaution should be taken to arrange concentrically the punched perforations in the sheets.

Comparison of the Gurley-Hill S-P-S Tester With Other Instruments

The following comparisons were made for seven grades of paper: (1) Gurley-Hill S-P-S smoothness and Bekk smoothness; (2) Gurley-Hill S-P-S smoothness and Gurley R. D. smoothness; (3) Gurley-Hill S-P-S porosity and Gurley densometer porosity; and (4) Gurley-Hill S-P-S softness and Federal compressibility.

The averages of ten readings for all these tests are given in Table VII. Table VIII presents the percentage average deviation for individual readings from the mean—an indication of the comparative reproducibility of the various measurements.

Gurley-Hill S-P-S smoothness and Bekk smoothness. The Bekk smoothness value for each paper sample was determined by calculating the mean of the average wire and felt side readings. The logarithmic chart, Fig. 4, illustrates the relatively good correlation that existed between the results of the two tests throughout the wide smoothness range which was involved. Furthermore, the numerical values obtained were of the same magnitude for the various grades of paper studied.

The reproducibility of the S-P-S readings, however, was found to be better than that of the Bekk readings. The percentage average deviation of individual readings from the mean was 6.4 for the S-P-S and 10.7 for the Bekk. This difference was undoubtedly due, at least in part, to the fact that in the S-P-S measurements 8 plies were tested simultaneously, giving a larger effective test area.

Gurley-Hill S-P-S smoothness and Gurley R. D. smoothness. Each Gurley R. D. smoothness value reported is the mean of the average wire side and the average felt side smoothness reading, taken in every case for a 5-cc. air flow. The standard procedure for S-P-S smoothness was used for all papers.

As shown in the logarithmic chart (*see* Fig. 5), a fair correlation existed between the two tests for papers of low smoothness, whereas a poor correla-

TABLE VII.—COMPARISON OF GURLEY-HILL S-P-S TESTER WITH OTHER INSTRUMENTS

Each value represents the average of ten readings

Paper	Basis weight	Caliper 0.001 in.	S-P-S smoothness sec.	R. D. Gurley smoothness sec. for 5 cc. flow	Bekk smoothness sec.	S-P-S porosity sec.	Densometer porosity sec.	S-P-S softness sec.	Federal compressibility Percentage change in caliper 39.7 lb./in.[2]	100.5 lb./in.[2]
Mimeo (17x22-500)										
A	21	5.60	15.5	23.6	11.3	21.5	20.5	37.8	4.82	9.65
B	21	4.58	18.2	31.2	18.1	47.1	44.0	29.9	4.15	7.49
C	21	4.94	20.6	24.3	16.5	21.8	21.4	42.6	5.47	9.10
D	21	4.63	21.6	24.0	16.3	....	....	27.6	4.54	8.00
E	17.5	5.47	8.5	9.2	8.1	....	....	63.0	9.14	15.00
M.F. book (25x38-500)										
A	50	3.33	215.9	285.3	182.4	141.8	125.8	29.9	2.70	4.81
B	45	3.60	73.0	77.7	78.2	69.2	59.9	50.0	5.83	9.45
C	43	2.85	436.8	532.0	290.5	58.0	58.2	26.5	3.86	5.97
D	62	4.12	188.2	186.9	155.6	....	....	45.0	3.64	5.84
E	40	2.87	100.7	129.9	146.2	....	....	34.6	4.88	8.02
Sulphite bond (17x22-500)										
A	20	4.06	33.6	42.4	21.6	141.9	134.3	19.2	3.45	5.67
B	16	2.98	64.1	70.6	38.1	945.1	804.5	18.9	4.36	6.38
C	22	3.97	57.6	57.9	34.3	135.5	115.2	26.3	5.79	8.31
D	20	4.09	46.6	54.9	30.9	....	....	23.9	3.18	4.16
E	20	4.57	34.2	59.8	24.4	....	....	26.1	3.50	5.91
S.C. book (25x38-500)										
A	60	3.33	612.3	484.3	589.5	243.4	239.4	23.9	2.70	3.30
B	40	2.48	492.7	272.0	538.9	236.8	194.8	29.5	4.44	7.65
C	40	2.54	305.2	191.2	403.3	216.0	191.0	28.4	4.72	6.70
D	50	3.00	527.4	459.9	448.5	....	....	24.1	2.67	3.67
E	60	3.37	352.8	298.2	270.5	....	....	34.5	3.26	4.45
Coated book (25x38-500)										
A	70	3.57	860.5	378.6	862.5	2639	2080	22.6	2.80	3.88
B	70	3.39	972.0	365.3	1129.0	3251	2149	21.5	2.66	3.84
C	70	3.43	1537.0	484.3	1576.8	2500	1834	24.2	1.46	2.04
D	70	3.34	758.0	399.5	640.7	....	....	25.1	2.69	3.30
E	70	3.37	1051.6	459.9	928.7	....	....	20.8	1.78	2.08
Newsprint (24x36-500)										
A	32	5.56	6.3	6.3	4.8	18.4	18.1	59.0	9.71	17.30
B	32	3.52	46.4	57.6	47.4	25.6	24.4	67.5	8.24	13.40
C	32	3.87	28.5	24.8	27.6	105.0	99.7	46.8	8.53	14.20
D	32	3.96	48.3	54.6	58.4	....	....	70.5	7.84	12.90
E	32	3.61	47.7	49.5	56.3	....	....	75.5	8.87	15.00
Offset (25x38-500)										
A	70	5.57	63.4	91.4	35.3	88.5	87.5	26.1	2.16	4.14
B	60	4.56	56.9	86.0	40.6	41.7	36.6	30.9	3.07	5.04
C	50	5.49	28.3	35.5	17.5	30.5	29.3	30.7	3.10	6.02
D	50	3.49	148.2	165.8	133.6	....	....	18.8	1.72	2.86

TURBIDITY

Range of turbidity in p.p.m.	Number of mills reporting process water in this range
0 to 10	34
10 to 50	6
50 to 635	2

COLOR

Range of color in p.p.m.	Number of mills reporting process water in this range
0 to 10	24
10 to 50	13
50 to 150	8

IRON CONTENT EXPRESSED AS FE

Range of Fe content in p.p.m.	Number of mills reporting process water in this range
0 to 0.1	16
0.1 to 0.5	16
0.5 to 1.0	3
1.0 to 1.5	3
1.5 to 4.0	4

MANGANESE CONTENT EXPRESSED AS Mn

Range of Mn content in p.p.m.	Number of mills reporting process water in this range
0 to "trace"	19
0.005 to 0.05	3
0.05 to 4.0	6

HARDNESS EXPRESSED AS $CaCO_3$ EQUIVALENT

Range of hardness in p.p.m.	Number of mills reporting process water in this range
0 to 25	9
25 to 50	14
50 to 100	6
100 to 200	9
200 to 300	5
300 to 400	6
400 to 766	1

ALKALINITY BY METHYL ORANGE TITRATION

Range of alkalinity in p.p.m.	Number of mills reporting process water in this range
0 to 25	19
25 to 50	10
50 to 100	1
100 to 200	10
200 to 400	3

ALKALINITY BY PHENOLPHTHALEIN TITRATION

Range of alkalinity in p.p.m.	Number of mills reporting process water in this range
0 to 0.1	19
0.1 to 10	4
10 to 80	0
80 to 200	2

SULPHATES

Range of sulphate content in p.p.m.	Number of mills reporting process water in this range
0 to 10	15
10 to 20	7
20 to 50	8
50 to 100	5
100 to 200	4
200 to 300	1

CHLORIDES

Range of chloride content in p.p.m.	Number of mills reporting process water in this range
0 to 10	30
10 to 20	6
20 to 50	9
50 to 100	1

TOTAL DISSOLVED SOLIDS

Range of dissolved solids content in p.p.m.	Number of mills reporting process water in this range
0 to 10	0
10 to 50	4
50 to 100	16
100 to 200	6
200 to 300	6
300 to 400	3
400 to 600	5

TOTAL SOLIDS (BOTH DISSOLVED AND SUSPENDED)

Range of total solids content in p.p.m.	Number of millsreporting process water in this range
0 to 50	0
50 to 100	17
100 to 200	5
200 to 300	6
300 to 600	8

pH

Range of pH	Number of mills reporting process water in this range
5.8 to 6.0	3
6.0 to 6.5	4
6.5 to 7.0	5
7.0 to 7.5	19
7.5 to 8.0	3
8.2 to 8.3	5
8.3 to 8.2	1

(In tabulating the above data certain minor liberties have been taken in order to obtain a simple tabulation.)

In reply to the part of the questionnaire requesting information in regard to permissible upper limits for impurities in process water, the replies were fragmentary. Only two mills specified limits for all impurities. Fifteen others specified limits for certain impurities. Many mills replied that this subject had never been investigated and no information was available.

Information from Individual Mills

The information obtained from individual mills is set forth in the following table:

PERMISSIBLE UPPER LIMITS OF IMPURITIES IN PROCESS WATER USED IN PAPER MILLS

Mill	Sulphate in p.p.m.	Chlorides in p.p.m.	Dissolved solids in p.p.m.	Total solids in p.p.m.	pH
3	...	...	425	425	7.0 to 7.2
10	70	4.5	140	150	7.3
12	...	30	...	100	6 to 7
15	...	...	59	...	7.4
17	...	0.75	50	250	7.3
19	7	13	64	...	7.0
27	...	...	...	...	7.2 to 7.6
29	50–200	4–12	153–283	160–290	not over 7.1
31	...	0	...	...	.....
43	...	...	...	...	6.8 to 7.3
44	20	10	75	75	6.0 to 7.5

The great variation in permissible limits for any given impurity as reported by different mills is perhaps partially attributable to the variety of products manufactured. In the manufacture of certain high grade products much lower limits on impurities in process water must be maintained than where lower grade products are being produced.

Mineral Impurities

Probably the most definite conclusion to be drawn from the questionnaires on this phase of the subject is that the paper industry has given comparatively little attention to specifications of process water quality and that relatively little accurate information is available. This comment refers, of course, to the mineral impurities in process water and in no sense applies to the microbiological content of such water. From the data obtained in the two questionnaires it is impossible to draw a satisfactory tentative set of specifications for permissible impurities in process water used in the manufacture of different paper products.

Conclusion

While a satisfactory set of process water specifications cannot be drawn from the data obtained, a great deal of valuable information has been assembled. This work constitutes a step in the right direction by increasing the growing "water consciousness" of paper manufacturers. The Water Committee plans to continue work along this line until a useful set of specifications on process water has been developed.

The Water Committee wishes to express its appreciation to the large number of mills, government agencies, etc., which replied to the two questionnaires. Much of the work involved in sending out the questionnaires and in assembling and correlating the data has been done by the staff at TAPPI headquarters in New York, N. Y. To the members of the headquarters staff and particularly to Vincent F. Waters, upon whom the bulk of this work has fallen, the Water Commottee also wishes to extend its thanks.

Imports of Paper and Paper Making Stock

Giving Manifests of New York, Boston, Philadelphia and Other Ports of Newsprint, Wrapping, Writing, Coated, Blotting, Tissue, Strawboard, Wallboard, Cigarette Papers, Sulphite, Kraft and Ground Wood Pulp.

Effective September 30, 1939, under Treasury Decision 49,970, all publications, exchanges and trade associations, were denied access to import manifests at the New York Customs House. The Paper Trade Journal and other interested parties have vigorously protested this ruling, and as soon as the order of the Treasury Department is modified or rescinded, full publication of all manifests will be resumed in these columns. In the interim, the Paper Trade Journal is making every possible effort to gather all available information from manifests, at various outside sources.

NEW YORK IMPORTS

WEEK ENDING JUNE 1, 1940

SUMMARY

Cigarette paper .....468 cs.
Newsprint .....12,819 rolls
Painting paper .....1 cs.
Drawing paper .....2 cs.
Filter paper .....156 bls., 3 cs.
Tissue paper .....20 cs.
Miscellaneous paper .....12 bls., 25 cs.

CIGARETTE PAPER

American Tobacco Co., ———, St. Nazaire, 100 cs.
De Manduit Paper Corp., ———, Havre, 368 cs.

NEWSPRINT

H. G. Craig Co., Inc., ———, Donnacona, 349 rolls.
International Paper Co., ———, Gatineau, 293 rolls.
H. G. Craig Co., Inc., ———, Donnacona, 354 rolls.
International Paper Co., ———, Gatineau, 327 rolls.
H. G. Craig Co., Inc., ———, Donnacona, 294 rolls.
News Syndicate, ———, Comeau Bay, 4,706 rolls.
H. G. Craig Co., Inc., ———, Donnacona, 328 rolls.
———, ———, Dalhousie, 5,841 rolls.
H. G. Craig Co., Inc., ———, Donnacona, 327 rolls.

PAINTING PAPER

Titan Shipping Co., ———, St. Nazaire, 1 cs.

DRAWING PAPER

Favor Ruhl & Co., ———, Havre, 2 cs.

FILTER PAPER

J. Manheimer, ———, St. Nazaire, 136 bls.
A. Giese & Son, ———, St. Nazaire, 20 bls.
———, ———, St. Nazaire, 3 cs.

TISSUE PAPER

Van Oppen & Co., *Exeter,* Genoa, 20 cs., (uncoated).

MISCELLANEOUS PAPER

Clay Adams Co., Inc., ———, Yokohama, 4 cs.
H. Reeve Angel & Co., Inc., ———, Yokohama, 18 cs.
The Judson Sheldon Corp., ———, St. Nazaire, 3 cs.
Hudson Shipping Co., ———, Havre, 12 bls.

RAGS, BAGGINGS, ETC.

———, ———, Melbourne, 28 bls. rags, 2 bls. thread waste.
A. Hurst & Co., ———, Shanghai, 50 bls. cotton waste.
D. M. Hicks, Inc., ———, Marseilles, 78 bls. paper stock.
W. Steck & Co., *Exeter,* Alexandria, 190 bls. old bagging.
Castle & Overton, Inc., *Exeter,* Alexandria, 150 bls. old bagging.
W. J. Green Co., Inc., *Exeter,* Alexandria, 21 bls. paper stock.
E. J. Keller Co., Inc., *Exeter,* Alexandria, 66 bls. white cotton rags, 65 bls. colored cotton rags.
Continental Bank Trust Co., ———, Havre, 112 bls. old bagging.

CASEIN

American Cyanamid & Chemical Corp., *Brazil,* Buenos Aires, 834 bags.
———, *Brazil,* Buenos Aires, 1,002 bags.
American British Chemical Supplies, *Brazil,* Buenos Aires, 834 bags.
National City Bank, *Brazil,* Buenos Aires, 417 bags.

BOSTON IMPORTS

WEEK ENDING JUNE 1, 1940

Elliott Addressing Machine Co., ———, Yokohama, 13 cs. paper.

LOS ANGELES IMPORTS

WEEK ENDING JUNE 1, 1940

———, ———, Yokohama, 2 cs. paper.
———, ———, Canada, 5,373 rolls newsprint.

Summer Paper Courses at Maine

The University of Maine will again conduct a summer course in Chemical Engineering and Pulp and Paper Technology during the six weeks between July 1 and August 9, 1940.

The Chemical Engineering courses include laboratory and lectures, the theory of which is based on chemical engineering equipment, some pieces of which are particularly suited to the pulp and paper industry.

The pulp and paper technology courses include lecture courses in pulp and paper manufacture and laboratory courses in paper making, pulp coloring and bleaching and paper testing. These courses are designed for paper salesmen, laboratory helpers, etc., who previously have not had an opportunity to obtain a general scientific understanding of the pulp and paper industry. In addition to class and laboratory work there will be a number of mill visits.

A copy of the summer session catalog, which explains courses offered, expenses, etc., may be obtained by addressing Director R. M. Peterson, University of Maine, Orono, Maine, and if interested, early reservations should be made.

S. M. Mercier to be Chief Engineer

The Jeffrey Manufacturing Company, Columbus, Ohio, announces the appointment of Stanley M. Mercier to the position of chief engineer, Conveyor Division, effective April 1, 1940. Mr. Mercier directs all conveyor engineering and engineering sales activities. Born and educated in England, Mr. Mercier has enjoyed a varied experience in industrial and construction engineering, design and sales, and has been associated with some of the most outstanding construction operations in the country during the last decade.

Jacob Sincoff Honored

Scores of leading figures in the Paper Industry attended the testimonial dinner tendered to Jacob Sincoff by the Paper, Paper Box and Allied Trades Division of the United Jewish Appeal, held at the Hotel Plaza Tuesday evening, May 28. The affair, recognized the business and philanthropic achievements of Mr. Sincoff and officially launched the industry's efforts in behalf of the 1940 United Jewish Appeal. More than 200, including trade and communal leaders, attended.

Judge Morris Rothenberg, who delivered the principal address at the dinner, praised Mr. Sincoff's activities in behalf of Jewry and the Zionist movement and pointed out that the guest of honor was a member of the Administrative Committee of the Zionist Organization of America. Judge Rothenberg said:

"Jacob Sincoff's wholehearted participation and leadership in drives for Palestine, overseas relief and other communal and philanthropic causes has given us cause to be proud of him. At a crucial moment in our history, such as today, we need more and more leaders of his calibre.

"Let us keep firmly in mind that America remains the hope of the world both as a democracy and as a source of aid to the helpless and the stricken. If the millions of those who have been driven into exile are to be helped, if the hungry are to be fed, the naked clothed, the homeless sheltered—it is only we in America who can provide the means to save them. Today our best means is the United Jewish Appeal, in which are joined the three major American Jewish agencies for war-relief, settlement in Palestine and refugee aid—the Joint Distribution Committee, the United Palestine Appeal and the National Refugee Service."

Among those who attended were Abraham Herman, President of HIAS and co-chairman of the Division sponsoring the dinner; Judge Benjamin Schreiber; Dr. Israel Goldstein, toastmaster; Harry H. Leibowitz, President of the Jewish Educational Association; Charles W. Endel, President of Congregation B'nai Jeshurun; John L. Bernstein, vice-president of HIAS; Morris Gintzler, and Abraham Mazor, co-chairman of the Division.

Also, Charles Ballin, Dan Bellin, Howard L. Bergman, Harry M. Elish, Milton Collier, William Conescu, M. Densen, Stanley Carten, Jacob S. Glekel, Morris Gold, Dr. I. W. Held, Morris Heller, Abraham Herman, Mr. H. M. Hess, David Kasson, Bernard Krulwich, Mrs. Rose Krulwitch, Emanuel M. Krulewitch, Melvin L. Krulewitch, M. Lipsey, Irving A. Manacher, Joseph Mazer, Hon. Theodore Ornstein, Mr. and Mrs. Meyer Paley, Louis P. Rocker, Louis Rosenfeld, F. B. Euhling, Irving Sabsevitz, William Salzman, Isadore Schweitzer, Heyman Schrier, Joseph A. Simon, Morris Sprayregen, Aaron Sverdlik, Dr. Frederick Theodore, and Jacob Weill.

New Rayonier Pulp Prices

Rayonier Incorporated announces its prices for the third quarter as follows: *Dissolving Pulps*—Rayaceta, $100.00; Purayonier, $100.00; Hicolor, $85.00; Rayonier, $80.00; Cellunier, $75.00.

Paper Pulps — Purayonier, $100.00; Raybrite, $85.00; Raybook, $72.50; Raybond, $72.50; Raywhite, $72.50.

All prices are based on Atlantic Seaboard ports of call, per ton of 2,000 pounds.

Norwegian Ship in Pulp Trade

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., June 3, 1940—A fugitive ship, flying the flag of its homeland, Norway, was safe in Wilmington's harbor on Wednesday of last week.

The freighter *Hildur,* running coastwise since the European war scene shifted to Norway, docked at the Marine Terminal in Wilmington with a cargo of woodpulp on last Wednesday.

Cloaked in the silence that the customs authorities have thrown around all vessels of belligerent nations, neither the exact Canadian port from which the *Hildur* embarked nor its destination from here were revealed.

Members of the crew were taciturn except for concern for their families in their fatherland. Captain C. G. Solberg, equally untalkative, seemed to be solicitous only of the fate of his wife and two sons that he left at his home near Oslo.

The *Hildur* was at sea when the Nazis invaded the Scandinavian country. The vessel continued on to this country and since then has been plying along the Atlantic coast, docking at ports of call without public announcement.

China Imports More Wood Pulp

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., May 29, 1940—Imports of wood pulp into China during 1939 totaled 4,607 metric tons. While this amount represents an increase of 44.1 per cent over 1938 receipts, it is considerably below the 1936 and 1937 totals of 13,296 tons and 15,920 tons, respectively.

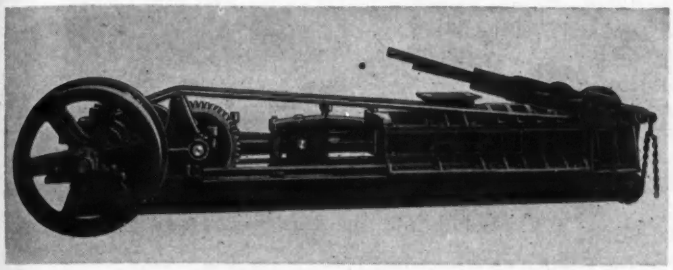
It is interesting to note that the concentration of import trade at Shanghai has fallen off greatly. During 1936 only 2 per cent of wood pulp was recorded as entering at ports other than Shanghai, whereas 1939 imports show 72.4 per cent entered at Shanghai and 27.6 per cent entered at other ports. Well informed local pulp importers estimate that the demand for pulp for paper-making in the Shanghai area is now only 20 per cent as large as in 1936 and that the rise in prices of imported wood pulp in terms of the local dollars due to the increased war time costs and speculative demand may further curtail the relatively small market which remains.

India To Get Canadian Newsprint

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., May 29, 1940—A large increase in the import into India of Canadian newsprint is expected within the next few months. Under pre-war conditions India's paper import trade was almost entirely monopolized by the Continental and Scandinavian countries. In view of the chaotic conditions now obtaining in that part of the world important shortage have already developed in the Indian market and the position may become more acute as the European conflict intensifies. Great Britain as a supplier of paper to the Indian market was at no time a very significant factor, but even the small quantities arriving from that quarter probably will be greatly restricted hereafter due to the Paper Control Regulations now in force in that country, which prohibit the export except under license of paper and board and paper making materials, including waste.

Press Your Kraft Screenings And Recook Them Profitably

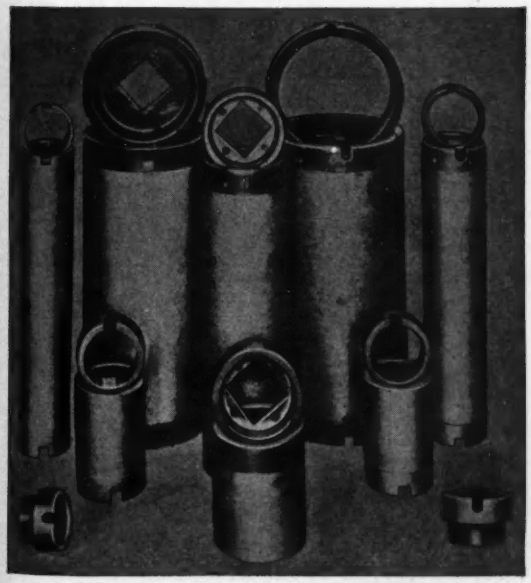


Several kraft mills have availed themselves of the use of the Nekoosa Screenings Press during the past ten years. It presses kraft screenings about 40% A.D. When recooked yield is slightly better than 50%. Dilution of cooking liquor is negligible. Machine is ruggedly constructed, operates with 7½ HP and requires very little attention. Maintenance is low.

Nekoosa Foundry & Machine Works, Inc.

Nekoosa, Wis.

Bark Presses
Chip Cutters
Flat Screens
Agitators
Wood Peelers
Sulphite Mill Fittings
Special Equipment
Rolls
Deckers
Wet Machines
Cylinder Moulds
Wood Splitters
Water Marking Equipment



ELIXMAN

C A P S — Straight wound paper cores made in sizes from 2" to 10" inside diameter with any thickness wall required.

Long draw protected slot caps of heavy gauge steel in all standard sizes.

Heavy duty caps with reenforced square hole. This new patented feature of reenforcement gives added strength and durability.

C O R E S

Samples of caps or cores will be gladly submitted.

ELIXMAN PAPER CORE COMPANY, INC.

CORINTH, N. Y.

New York Paper and Pulp Market Review

Third Quarter Paper Prices To Advance $3 To $10 Per Ton—Domestic and Canadian Bleached Sulphite Pulp Expected To Rise To $72.50 Per Ton and Unbleached To $63.50 To 67.50 Per Ton In Third Quarter.

Office of the PAPER TRADE JOURNAL,
Wednesday, June 5, 1940.

Sales volume in the wholesale paper market continues to be reported at a good level, as indicated in the reports received from many manufacturers' representatives, jobbers, and general paper merchants during the current week.

The index of general business activity rose to 96.5 per cent for the week ended May 29, from 95.4 per cent for the preceding week, compared with 87.3 per cent for the corresponding week last year.

Paper production of 248 mills for the week ended May 25 was estimated at 94.0 per cent, compared with 79.0 per cent for 1939, with 71.4 per cent for 1938, with 90.8 per cent for 1937, and with 81.7 per cent for the corresponding week in 1936.

Paper board production for the week ended May 25 was 79.0 per cent, compared with 66.0 per cent for 1939, with 60.0 per cent for 1938, with 86.0 per cent for 1937, and with 67.0 per cent for the corresponding week in 1936.

The wholesale paper market is strong, prices are firm and the trend is upward. Contract prices on many grades of paper will be advanced. One large manufacturer states its prices will be advanced on July 1 for the third quarter of the year, from $3 to $10 per ton. As some grades of paper are out of line, prices on these grades which were not advanced when other grades were advanced, are expected to be adjusted to moderately higher levels, effective July 1.

Mechanical Pulp

Production and sales of mechanical pulp, domestic and Canadian, are reported at a good level. Contract prices remain unchanged with no changes expected until quotations are announced for the third quarter of the year.

Chemical Pulp

Higher prices will be announced in the new contract quotations on chemical pulp for the third quarter of this year, beginning July 1. In announcing prices for the third quarter, Rayonier quoted the following on its paper making grades: Purayonier, $100; Raybrite, $85; Raybook, Raybond and Raywhite, $72.50, per ton of 2,000 pounds, Atlantic Seaboard.

Third quarter prices on regular standard domestic and Canadian, bleached sulphite pulp is expected to be $72.50 per ton. Third quarter contract prices on unbleached sulphite pulp of two Western mills is at $63.50 per ton, while one Pacific Coast mill will probably quote $67.50 per ton.

No shipments of chemical wood pulp have been resumed from the Scandinavian countries. The high insurance rates asked, failure to make agreements with Great Britain and the great risks to shipping from northern ports, are reported to be obstacles to the resumption of the export grade in wood pulp from the northern countries at this date.

Rags

No important change in the rag market has been reported this week. Mill demand continues moderately good in some grades. Prices remain firm and unchanged. Demand of roofing mills continue to be below trade expectations.

Old Rope and Bagging

Trading in old rope is reported as rather quiet at this date. In view of the small supplies available, a more active demand is looked for in the trade, with higher prices, when mill buying increases in volume.

Trading in old bagging continues in rather light volume. Prices are firm and no important changes have been reported at this date.

Old Waste Paper

The old waste paper market continues strong, with all prices holding firm. Export inquiries are reported increasing and more export tonnage is looked for in the trade. The only important price change this week was the advance in colored ledger stock, currently quoted at from 1.35 to 1.45.

Twine

No important change in demand or prices has been reported in the twine market this week. Prices on all grades of hard and soft fiber twines are firm.

Paper Men Plan Golf Outing

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., June 3, 1940—The third in the series of golf tournaments of the Philadelphia Paper and Cordage Association for the 1940 season will be held on Tuesday, June 18 at the Manufacturers Country Club, Oreland, Pa., with Jack Shinners of the Acme Specialty Company, as host. Besides golf there will also be tennis and quoits. In the evening dinner will be served accompanied with music, and after dinner an elaborate floor show will be staged. Green fees are $2.00 and the dinner will be $2.00. Mr. Shinners states there will be prizes awarded for all those participating in the tournament and contests; Dick Gifford of Gifford Manufacturing Company, will be in charge of the tennis match while president George K. Hooper will do the honors for the quoit players.

In order that the activities of the Philadelphia Paper and Cordage Association be put in more definite and tangible shape, a meeting of the board of directors was held on Monday last at Graf's restaurant for the purpose of a general checkup of the first six months activities for this year.

The directors of this association at a meeting today decided to recommend at its next regular monthly meeting, to be held on June 21, that the membership of the Association be limited to 125.

Measures accurately the wear on calender and press rolls . . . .

Signals STOP to continued production on worn rolls, protects against rejects. Use it to check regrinding, too. It is light in weight, very easy to use and readily adjustable to a wide range of roll diameters. *Ask for details; no obligation; a note on your letterhead brings you complete information.*

Lobdell MICROMETER ROLL CALIPER for PROTECTION AGAINST REJECTS! COST: about 69c a day

LOBDELL
CAR WHEEL COMPANY
104 Years in Business
WILMINGTON·DELAWARE

THE DRAPER FELTS

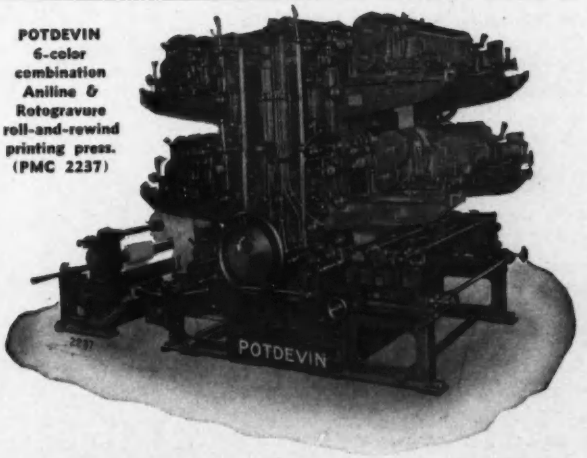
All kinds and styles of Felts for all kinds and styles of Papers.

Write us about your Felt problems and let us help you reduce your Felt Costs—we will call anywhere at any time.

DRAPER BROS. COMPANY
CANTON, MASS.

Woolen manufacturers since 1856

For Your **FINISHING ROOM . . .**



POTDEVIN 6-color combination Aniline & Rotogravure roll-and-rewind printing press. (PMC 2237)

POTDEVIN ANILINE
Decorating & Staining
WEB PRESSES

POTDEVIN MACHINE CO.
EST. 1893
1223 38TH ST. BROOKLYN N.Y.
POTDEVIN

MISCELLANEOUS MARKETS

Office of the PAPER TRADE JOURNAL,
Wednesday, June 5, 1940.

BLANC FIXE—Quotations on blanc fixe are firm and conform to prevailing market levels. The pulp is currently quoted at $35 per ton, in barrels, at works; the powder is quoted at $50 per ton, in bags, f.o.b., works.

BLEACHING POWDER—Prices on bleaching powder are firm, with demand reported steady for the week. Prices are unchanged. Bleaching powder is currently quoted at $2 per 100 pounds, in drums, at works.

CASEIN—Quotations on casein are higher for the week. Standard domestic casein, 20-30 mesh, is currently quoted at from 13 to 14 cents per pound; 80-100 mesh, at from 13½ to 14½ cents per pound; all prices in bags, car lots. Argentina casein is currently quoted at 12½ cents per pound; French casein at 15 cents per pound is nominal.

CAUSTIC SODA—Prices on caustic soda are firm and continue unchanged at prevailing market quotations. Demand continues moderate. Solid caustic soda is currently quoted at $2.30 per 100 pounds; flake and ground at $2.70 per 100 pounds, in drums, at works.

CHINA CLAY—Quotations on china clay are firm and continue unchanged at prevailing market levels. Domestic filler clay is currently quoted at from $7 to $15 per ton; coating clay at from $11 to $22 per ton, at mines. Imported clay is currently offered at from $13 to $25 per long ton, ship side.

CHLORINE—Prices on chlorine are firm and conform to prevailing market quotations. Demand reported moderate this week. Chlorine is currently quoted at $1.75 per 100 pounds, in single-unit tank cars, f.o.b., works.

ROSIN—The rosin market is reported moderately firm this week, with prices on most grades lower. "G" gum rosin is currently quoted at $4.45 per 280 pounds, gross weight, in barrels, Savannah. "FF" wood rosin is currently offered at $4.45 per 280 pounds, gross weight, in barrels, New York. Seventy per cent gum rosin size is quoted at $2.55 per 100 pounds, f.o.b., shipping point.

SALT CAKE—Prices on salt cake are firm and nominal and continue unchanged under a good demand. Domestic salt cake is currently quoted at $17 per ton, in bulk; chrome salt cake at $16 per ton; all prices in car lots, f.o.b., shipping point. Imported salt cake, currently quoted at $20 per ton, is nominal.

SODA ASH—Quotations on soda ash are firm and continue unchanged. Demand reported moderate. Quotations on soda ash in car lots, per 100 pounds, are as follows: in bulk, $.90; in paper bags, $1.05; and in barrels, $1.35.

STARCH—Prices on corn starch are unchanged for the week. Demand continues moderate. Pearl is currently quoted at $2.70 per 100 pounds; powdered starch at $2.80 per 100 pounds; all prices in bags, car lots, f.o.b., Chicago.

SULPHATE OF ALUMINA—Quotations on sulphate of alumina are firm. Demand reported moderately good for the week. The commercial grades are currently quoted at $1.15 per 100 pounds; iron free at $1.60 per 100 pounds; all prices in bags, car lots, f.o.b., works.

SULPHUR—Prices on sulphur are firm and continue unchanged at prevailing market levels. Annual contracts are currently quoted at $16 per long ton, f.o.b., mines. Spot and nearby car lots are offered at $19 per ton.

TALC—Quotations on talc are firm and conform to prevailing market levels. Domestic talc is currently quoted at from $15 to $18 per ton, Eastern mines. Imported talc is quoted at from $23 to $45 per ton.

MARKET QUOTATIONS

Paper

(Delivered New York)

News, per ton—			
Roll, contract	$50.00	@	—
Sheets	58.00	"	—
Kraft—per cwt.—Delivered Zone A			
Northern, Extra Quality	$5.00	@	$5.50
Superstandard	4.62½	"	5.00
Northern Standard Wrapping	4.37¼	"	4.62½
Standard Wrapping	4.25	"	—
Tissues—Per Ream—Carlots			
White No. 1	.92½	@	—
White No. 1 M. G.	.90	"	—
White No. 1½	.70	"	—
White No. 2	.65	"	—
Anti-Tarnish M. G.	.80	"	—
Colored	.87½	"	—
Kraft	.80	"	—
Manila	.65	"	—
Unbl. Toilet, 1 M.	3.50	"	—
Bleached Toilet	5.26	"	—
Paper Towels, Per Case—			
Unbleached, Jr.	1.95	@	—
Bleached, Jr.	3.20	"	—
Manila—per cwt.—C. l. f. a.			
No. 1 Jute	8.25	@	10.25
No. 1 Manila Wrapping, 35 lb.	5.25	"	—
No. 2 Manila Wrapping, 35 lb.	5.00	"	—
Boards, per ton—			
News	35.00	@	40.00
Chip	35.00	"	40.00
Sgl. Mla. Ll. Chip	55.00	"	57.00
White Pat. Coated	67.00	"	70.00
Kraft Liners	55.00	"	—
Binders Boards	73.00	"	80.00

The following are representative of distributors' resale prices:

Rag Content Bonds and Ledgers—White, Assorted Items, Delivered in Zone 1:

	Bonds			Ledgers		
100% Rag Ext. No. 1	$39.10	@	$46.00	$40.25	@	$47.25
100% Rag	31.05	"	36.50	32.20	"	37.75
85% Rag	....	"	....	29.90	"	35.00
75% Rag	23.60	"	27.75	24.75	"	29.00
65% Rag	....	"	....	21.65	"	26.25
50% Rag	17.55	"	21.50	18.70	"	22.75
25% Rag	14.65	"	17.75	15.80	"	19.25

Colors at $1.00 cwt. extra.

Sulphite Bonds and Ledgers—White, Assorted Items, Delivered in Zone 1:

	Bonds			Ledgers		
No. 1	$8.95	@	$11.00	$10.10	@	$12.25
No. 2	8.05	"	9.75	9.25	"	11.25
No. 3	7.60	"	9.25	8.50	"	10.75
No. 4	7.30	"	9.00	8.50	"	10.25

Colors $1.00 cwt. extra.

Free Sheet Book Papers—White, Cased Paper, Delivered in Zone 1:

No. 1 Glossy Coated	$11.90	@	$13.50			
No. 2 Glossy Coated	10.35	"	11.75			
No. 3 Glossy Coated	9.55	"	11.00			
No. 4 Glossy Coated	9.15	"	10.50			
No. 1 Antique (watermarked)	8.35	"	9.50			
No. 2 Offset	7.70	"	9.00			
A Grade E. F.	7.50	"	8.75			
A Grade S. & S. C.	7.75	"	9.00			
B Grade E. F.	6.95	"	8.00			
B Grade S. & S. C.	7.20	"	8.25			
C Grade E. F.	6.65	"	7.75			
C Grade S. & S. C.	6.90	"	8.00			
D Grade E. F.	6.40	"	7.50			
D Grade S. & S. C.	6.65	"	7.75			

Ivory & India at $.50 cwt. extra.

Mechanical Pulp

(On Dock, Atlantic Ports)

No. 1 Imported—			
Moist	$38.00	@	44.00
Dry	38.00	"	44.00
(Delivered)			
No. 1 Domestic and Canadian	40.00	@	42.00

Chemical Pulp

(On Dock, Atlantic, Gulf and West Coast Ports)

Bleached Sulphite (Domestic and Foreign)—			
Prime Bleached Sulphite	3.07½	@	4.15
Prime Qualities—			
Easy-Bleaching Sulphite	2.75	"	3.60
Strong Unbleached Sulphite	2.75	"	3.50
(On Dock, Atlantic Ports)			
Kraft Bleached	3.37½	@	3.75
Kraft Light & Strong	2.50	"	3.60
Kraft No. 1	2.50	"	3.50
(F. o. b. Pulp Mill)			
Kraft Domestic and Canadian	2.50	"	3.00
(Delivered)			
Soda Bleached	2.90	"	—

Add 60 cents per short ton, dock charges for Albanay; $2.50 for Lake Ports East and $3.50 for Lake Ports West of Mackinac Straits.

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—			
New White, No. 1.	7.00	@	7.25
Silesias No. 1	4.25	"	4.75
New Unbleached	6.75	"	7.00
Blue Overall	4.50	"	4.75
Fancy	3.25	"	3.50
Washables	2.00	"	2.13
Mixed Khaki Cuttings	2.75	"	3.00
O. D. Khaki Cuttings	3.15	"	3.35

Old Rags

White, No. 1—			
Repacked	3.25	"	3.50
Miscellaneous	2.75	"	3.00
White, No. 2—			
Repacked	2.50	"	2.75
Miscellaneous	2.00	"	2.25
Thirds and Blues—			
Repacked	2.00	"	2.25
Miscellaneous	1.75	"	1.90
Roofing Rags—			
No. 1	1.10	"	1.15
No. 2	.82½	"	.87½
No. 3 (bagging)	.90	"	1.00
No. 4	.60	"	.65
No. 5A	.60	"	.65

Foreign Rags

All prices nominal

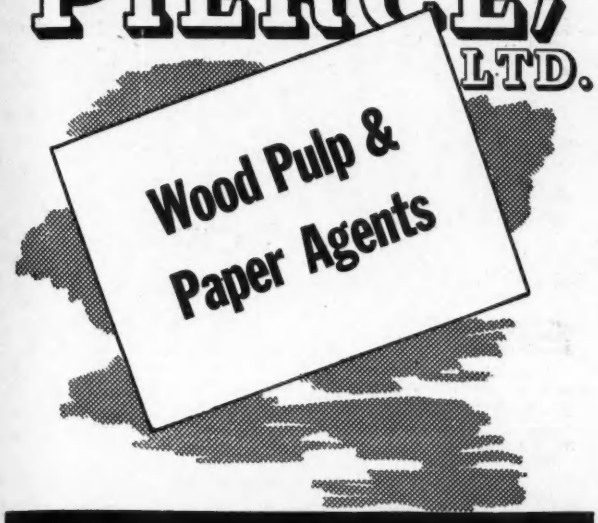
New Rags

New Dark Cuttings	2.25	@	2.40
New Mixed Cuttings	2.00	"	2.20
New Light Silesias	5.50	"	5.75
Light Flannelettes	5.50	"	5.75
New White Cuttings	7.00	"	7.50
New Light Oxford	4.00	"	4.50
New Light Prints	3.00	"	3.25

Old Rags

No. 1 White Linens	7.50	"	8.50
No. 2 White Linens	6.50	"	7.50
No. 3 White Linens	4.50	"	—

PRICE & PIERCE, LTD.



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AVENEX!

...THE NEW PAPER AND PAPER BOARD SIZING THAT HELPS DELAY OXIDATION!

● Increase your sales to food packers by giving your wrappers and cartons extra protective qualities with AVENEX surface sizing. AVENEX, used as surface sizing, helps wrappers and cartons retard oxidation, thus prolonging the original fresh flavor of foods. In this way papers treated with AVENEX open up new selling and profit opportunities for you. Write us—or our sales agents—now for complete information. The value of AVENEX and AVENEX treated papers has been thoroughly tested by many leading state colleges. Let us send you their reports.

The AVENEX Treatment is Unusually Valuable For
Butter Liners
Lard and Bacon Wrappers
Milk Bottle Paperboard
Coffee Bag Liners
Pork Loin Papers
Meat Packing Papers
Doughnut and
Baking Cartons
Biscuit and
Cracker Liners
Cereal Cartons
. . . and other food wrappers

The Quaker Oats Company
17 Battery Place, New York City

Sales Agents **BENNETT, Inc.** *Cambridge Mass.*

ASHCRAFT-WILKINSON CO.

Exclusive Distributors for

DUVAL TEXAS SULPHUR CO.

Crude
SULPHUR
99½

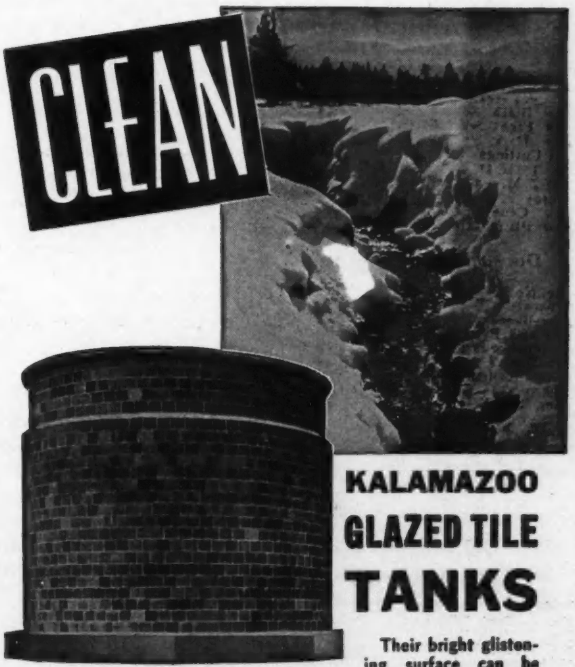
Free from Arsenic & Selenium

adequate stocks maintained at both mines Galveston, Texas

ASHCRAFT-WILKINSON CO.
ATLANTA, GA.

Branches

Norfolk, Va. **Charleston, S. C.**



KALAMAZOO GLAZED TILE TANKS

Their bright glistening surface can be kept absolutely clean by a few minutes wash down with a hose—no slime, no concrete chips. Impervious to the action of ordinary stock fluids.

Manufacturers of wood tanks for 60 years.

GLAZED TILE — KALAMAZOO TANK & SILO CO. — WOOD
KALAMAZOO, MICHIGAN

MISCELLANEOUS MARKETS

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Northern Standard Wrapping	4.37¼	"	4.62½
Standard Wrapping	4.25	"	—
Tissues—Per Ream—Carlots			
White No. 1	.92½	@	—
White No. 1 M. G.	.90	"	—
White No. 1½	.70	"	—
White No. 2	.65	"	—
Anti-Tarnish M. G.	.80	"	—
Colored	.87½	"	—
Kraft	.80	"	—
Manila	.65	"	—
Unbl. Toilet, 1 M.	3.50	"	—
Bleached Toilet	5.26	"	—
Paper Towels, Per Case—			
Unbleached, Jr.	1.95	@	—
Bleached, Jr.	3.20	"	—
Manila—per cwt.—C. l. f. a.			
No. 1 Jute	8.25	@	10.25
No. 1 Manila Wrapping, 35 lb.	5.25	"	—
No. 2 Manila Wrapping, 35 lb.	5.00	"	—
Boards, per ton—			
News	35.00	@	40.00
Chip	35.00	"	40.00
Sgl. Mla. Lt. Chip	55.00	"	57.00
White Pat. Coated	67.00	"	70.00
Kraft Liners	55.00	"	—
Binders Boards	73.00	"	80.00

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85% Rag	....	"	....	29.90	"	35.00
75% Rag	23.60	"	27.75	24.75	"	29.00
65% Rag	....	"	....	21.65	"	26.25
50% Rag	17.55	"	21.50	18.70	"	22.75
25% Rag	14.65	"	17.75	15.80	"	19.25

Colors at $1.00 cwt. extra.

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No. 3	7.60	"	9.25	8.50	"	10.75
No. 4	7.30	"	9.00	8.50	"	10.25

Colors $1.00 cwt. extra.

Free Sheet Book Papers—White, Cased Paper, Delivered in Zone 1:

No. 1 Glossy Coated	$11.90	@	$13.50
No. 2 Glossy Coated	10.35	"	11.75
No. 3 Glossy Coated	9.55	"	11.00
No. 4 Glossy Coated	9.15	"	10.50
No. 1 Antique (watermarked)	8.35	"	9.50
No. 2 Offset	7.70	"	9.00
A Grade E. F.	7.50	"	8.75
A Grade S. & S. C.	7.75	"	9.00
B Grade E. F.	6.95	"	8.00
B Grade S. & S. C.	7.20	"	8.25
C Grade E. F.	6.65	"	7.75
C Grade S. & S. C.	6.90	"	8.00
D Grade E. F.	6.40	"	7.50
D Grade S. & S. C.	6.65	"	7.75

Ivory & India at $.50 cwt. extra.

Mechanical Pulp

(On Dock, Atlantic Ports)

No. 1 Imported—			
Moist	$38.00	@	44.00
Dry	38.00	"	44.00
(Delivered)			
No. 1 Domestic and Canadian	40.00	@	42.00

Chemical Pulp

(On Dock, Atlantic, Gulf and West Coast Ports)

Bleached Sulphite (Domestic and Foreign)—			
Prime Bleached Sulphite	3.07½	@	4.15
Prime Qualities—			
Easy-Bleaching Sulphite	2.75	"	3.60
Strong Unbleached Sulphite	2.75	"	3.50
(On Dock, Atlantic Ports)			
Kraft Bleached	3.37½	@	3.75
Kraft Light & Strong	2.50	"	3.60
Kraft No. 1	2.50	"	3.50
(F. o. b. Pulp Mill)			
Kraft Domestic and Canadian	2.50	"	3.00
(Delivered)			
Soda Bleached	2.90	"	—

Add 60 cents per short ton, dock charges for Albanay; $2.50 for Lake Ports East and $3.50 for Lake Ports West of Mackinac Straits.

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—			
New White, No. 1	7.00	@	7.25
Silesias No. 1	4.25	"	4.75
New Unbleached	6.75	"	7.00
Blue Overall	4.50	"	4.75
Fancy	3.25	"	3.50
Washables	2.00	"	2.15
Mixed Khaki Cuttings	2.75	"	3.00
O. D. Khaki Cuttings	3.15	"	3.35

Old Rags

White, No. 1—			
Repacked	3.25	"	3.50
Miscellaneous	2.75	"	3.00
White, No. 2—			
Repacked	2.50	"	2.75
Miscellaneous	2.00	"	2.25
Thirds and Blues—			
Repacked	2.00	"	2.25
Miscellaneous	1.75	"	1.90
Roofing Rags—			
No. 1	1.10	"	1.15
No. 2	.82½	"	.87½
No. 3 (bagging)	.90	"	1.00
No. 4	.60	"	.65
No. 5A	.60	"	.65

Foreign Rags

All prices nominal

New Rags

New Dark Cuttings	2.25	@	2.40
New Mixed Cuttings	2.00	"	2.20
New Light Silesias	5.50	"	5.75
Light Flannelettes	5.50	"	5.75
New White Cuttings	7.00	"	7.50
New Light Oxford	4.00	"	4.50
New Light Prints	3.00	"	3.25

Old Rags

No. 1 White Linens	7.50	"	8.50
No. 2 White Linens	6.50	"	7.50
No. 3 White Linens	4.50	"	—

PRICE & PIERCE, LTD.

Wood Pulp & Paper Agents

60 East 42nd Street New York City

Get Big Selling Advantage in The Food Industry With

AVENEX!

...THE NEW PAPER AND PAPER BOARD SIZING THAT HELPS DELAY OXIDATION!

● Increase your sales to food packers by giving your wrappers and cartons extra protective qualities with AVENEX surface sizing. AVENEX, used as surface sizing, helps wrappers and cartons retard oxidation, thus prolonging the original fresh flavor of foods. In this way papers treated with AVENEX open up new selling and profit opportunities for you. Write us—or our sales agents—now for complete information. The value of AVENEX and AVENEX treated papers has been thoroughly tested by many leading state colleges. Let us send you their reports.

The AVENEX Treatment is Unusually Valuable For
Butter Liners
Lard and Bacon Wrappers
Milk Bottle Paperboard
Coffee Bag Liners
Pork Loin Papers
Meat Packing Papers
Doughnut and Baking Cartons
Biscuit and Cracker Liners
Cereal Cartons
. . . and other food wrappers

The Quaker Oats Company
17 Battery Place, New York City

Sales Agents **BENNETT, Inc.** *Cambridge Mass.*

ASHCRAFT-WILKINSON CO.

Exclusive Distributors for

DUVAL TEXAS SULPHUR CO.

Crude
SULPHUR
99½

Free from Arsenic & Selenium

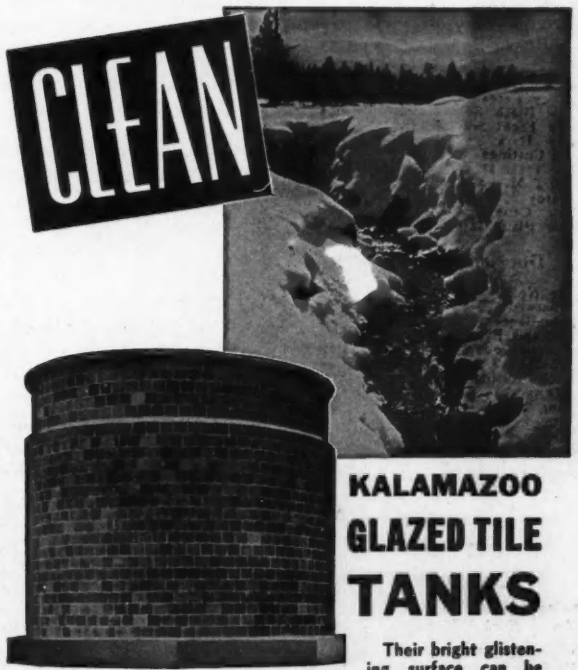
adequate stocks maintained at both mines
Galveston, Texas

ASHCRAFT-WILKINSON CO.
ATLANTA, GA.

Branches

Norfolk, Va. Charleston, S. C.

CLEAN



KALAMAZOO GLAZED TILE TANKS

Their bright glistening surface can be kept absolutely clean by a few minutes wash down with a hose—no slime, no concrete chips. Impervious to the action of ordinary stock fluids.

Manufacturers of wood tanks for 60 years.

GLAZED TILE — KALAMAZOO TANK & SILO CO. — WOOD
KALAMAZOO MICHIGAN

No. 4 White Linens	2.25	@	3.25
No. 1 White Cotton	4.25	"	4.75
No. 2 White Cotton	3.25	"	3.75
No. 3 White Cotton	2.50	"	3.00
No. 4 White Cotton	1.90	"	2.20
Extra Light Prints	2.00	"	2.40
Ord. Light Prints	1.75	"	2.15
Med. Light Prints	1.55	"	1.95
Dutch Blue Cottons	2.25	"	2.50
French Blue Linens	3.00	"	—
Checks and Blues	2.00	"	—
Linsey Garments	1.90	"	2.00
Dark Cottons	1.50	"	1.60
Old Shopperies	1.30	"	1.45
New Shopperies	1.45	"	1.50
French Blues	2.25	"	2.50

Old Rope and Bagging

(Prices to Mill, f. o. b. N. Y.)

Gunny No. 1—			
Foreign	2.75	@	3.00
Domestic	2.50	"	2.75
Wool Tares, light	2.00	"	2.25
Wool Tares, heavy	2.12½	"	2.25
Bright Bagging	2.25	"	2.50
Manila Rope—			
Foreign	4.25	"	4.50
Domestic	3.75	"	4.00
Jute Threads	2.62½	"	2.75
Sisal Strings	2.10	"	2.35
Mixed Strings	1.10	"	1.20

Old Waste Papers

(F. o. b. New York)

Shavings—			
White Envelope Cuttings	3.10	@	3.25
Ordinary Hard White No. 1	2.25	@	2.50
Soft White No. 1	1.80	"	1.90
Soft White Extra	2.50	"	2.60
Flat Stock—			
Stitchless	1.10	"	1.25
Overissue Mag.	1.00	"	1.10
Solid Flat Book	1.05	"	1.10
Crumbled No. 1	.70	"	.75
Ledger White Stock	2.00	"	2.15
Ledger Stock Colored	1.35	"	1.45
Manila—			
New Env. Cut	1.70	"	1.80
New Cuttings	1.30	"	1.40
Old Kraft Machine Compressed bales	1.75	"	1.85
News—			
No. 1 White News	1.75	"	1.90
Strictly Overissue	.70	"	.75
Strictly Folded	.50	"	.55
Corrugated	.50	"	.55
No. 1 Mixed Paper	.37½	"	.40

Twines

(F. o. b. Mill)

(Soft Fiber)

Coarse Polished—			
India	.19½	@	—
White Hemp	.19½	"	—
Fine Polished—			
Fine India	.24	"	—
Unpolished—			
Box	.15	"	—
Paper Makers	.15¾	"	—
Tube Rope	.17	"	—
Wall Paper	.16	"	—
Wrapping	.18¾	"	—
Soft Fiber Rope	.16¾	"	—
Cotton	.21½	"	—

(Hard Fiber)

Medium Java	.20	"	—
Mex. Sisal	.17	"	—
Manila	.24¾	"	—
Domestic	2.25	"	2.50
Sisal Rope	2.25	"	2.50
Mixed Rope	.85	"	1.00
Transmission Rope—			
Foreign	3.50	"	3.75
Domestic	2.50	"	3.00
Soft Jute Rope	3.00	"	3.25
Manila Rope—			
Foreign	4.85	"	5.10
Jute Carpet Threads	1.50	"	1.75
Gunny Bagging—			
Foreign	2.75	"	2.85
Domestic	2.50	"	3.00
Bleachery Burlap	4.00	"	3.25
Scrap Burlap—			
Foreign	2.25	"	2.40
Domestic	2.50	"	—
Scrap Sisal	2.25	"	2.50
Scrap Sisal for Shredding	2.30	"	2.65
Wool Tares, Heavy	2.40	"	2.50
New Burlap Cuttings	3.75	"	4.00
Aust. Wool Pouches	3.00	"	3.25
Heavy baling bagging	2.60	"	2.90
Paper Mill Bagging	1.75	"	2.00
No. 2 Bagging	.75	"	.80

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints	—	@	.03
Fancy Percales	.04	"	.04¼
New White No. 1	—	"	.07½
New Light Flannelettes	.05	"	.05¼
Silesias No. 1	.05	"	—
New Black Silesias	3.20	"	3.25
Soft Unbleached	.07	"	.07½
Blue Cheviots	.05	"	.05½
Fancy	.02	"	.02½
Washable	.02	"	.02½
Cottons—According to Grades—			
Blue Overalls	.04½	"	.05
New Black, Soft	.03	"	.03¼
Khaki Cuttings	.03	"	—
O. D. Khaki	.03	"	.03½
Corduroy	.02¾	"	.03
New Canvas	.06¾	"	.07¼
B. V. D. Cuttings	.07	"	.07½

Domestic Rags (Old)

(F. o.b. Boston)

White No. 1—			
Repacked	2.75	"	3.75
Miscellaneous	2.40	"	2.60
White No. 2—			
Repacked	1.90	"	2.00
Miscellaneous	2.00	"	2.25
Twos and Blues	1.50	"	2.00
Old Blue Overalls	1.60	"	2.00
Thirds and Blues—			
Repacked	—	"	1.25
Miscellaneous	—	"	1.00
Black Stockings	3.50	"	4.00
Roofing Stock—			
No. 1	1.00	"	1.25
No. 2	—	"	1.10
No. 3	—	"	.90

Foreign Rags

(F. o. b. Boston)

Canvas	.04¼	@	—
Dark Cottons	(nominal)		
Dutch Blues	(nominal)		
New Checks and Blues	(nominal)		
Old Fustians	(nominal)		
Old Linsey Garments	(nominal)		
New Silesias	(nominal)		

PHILADELPHIA

Domestic Rags (New)

(Price to Mill, f.o.b. Phila.)

Shirt Cuttings—			
New White No. 1	.07¼	@	.07½
New White No. 2	.04	"	.04½
Light Silesias	—	"	.04½
Silesias, No. 1	—	"	.04½
Black Silesias, soft	—	"	.03¾
New Unbleached	.05½	"	.06
Washable, No. 1	—	"	.04
Blue Overall	.04½	"	.05
Cottons—According to grades—			
Washable No. 2	—	"	.01¾
New Blue	—	"	.01¾
Fancy Percales	—	"	.03
New Black Soft	—	"	.04
New Light Seconds	.04½	"	.05
New Dark Seconds	—	"	1.55
Khaki Cuttings—			
No. 1 O. D.	.03¼	"	.03½
No. 2 Mixed	.02½		.02¾
Corduroy	—	"	.03
New Canvas	.05½	"	.06
New Black Mixed	—	"	.03

Domestic Rags (Old)

White No. 1—			
Repacked	3.25	@	3.75
Miscellaneous	2.50	"	2.75
Thirds and Blues—			
Miscellaneous	1.50	"	1.55
Repacked	1.75	"	2.00
Black Stockings (Export)	3.50	"	4.00
Roofing Stock—			
Foreign No. 1	Nominal		
Domestic No. 1	—	"	.90
Domestic No. 2	—	"	.80
Roofing Bagging	—	"	.70

Bagging

(f.o.b. Phila.)

Gunny, No. 1—			
Foreign	Nominal		
Domestic	2.25	@	2.75
Manila Rope	—	"	4.50
Sisal Rope	1.75	"	2.00
Mixed Rope	1.00	"	1.25
Scrap—			
No. 1	2.50	"	2.75
No. 2	1.10	"	1.15
Wool Tares, heavy	3.50	"	3.70
Mixed Strings	.75	"	1.00
No. 1 New Light Burlap	3.00	"	3.50
New Burlap Cuttings	2.00	"	2.25

Old Papers

(f.o.b. Phila.)

Shavings—			
No. 1 Hard White	2.40	@	2.50
No. 2 Hard White	2.10	"	2.15
No. 1 Soft White	1.85	"	1.90
No. 2 Soft White	1.50	"	1.60
No. 1 Mixed	.90	"	1.00
Solid Ledger Stock	1.60	"	1.75
Ledger Stock, white	1.75	"	1.80
Ledger Stock, colored	1.20	"	1.25
No. 1 Books, heavy	.90	"	.95
Manila Cuttings	1.75	"	1.80
Print Manila	.55	"	.60
Container Manila	.45	"	.50
Kraft Paper	1.50	"	1.60
No. 1 Mixed Paper	.40	"	.45
Straw Board Chip	—	"	.40
Binders Board Chip	.40	"	—
Corrugated Board	.60	"	.65
Overissue News	.75	"	.80
Old Newspapers	.55	"	.60

BOSTON

Old Papers

(f.o.b. Boston)

Shavings—			
No. 1 Hard White	2.75	@	3.15
No. 1 Soft White	2.00	"	2.25
No. 2 Mixed	.75	"	.80
Solid Ledger Books	1.50	"	1.75
Overissue Ledger Stock	1.75	"	2.00
Mixed Ledgers	.85	"	.90
No. 1 Books, heavy	1.00	"	1.10
No. 1 Books, light	.65	"	.75
Crumpled Stitchless Book Stock	.55	"	.65
Manila Env. Cuttings	1.85	"	2.00
Manila Envelope Cuttings, extra quality	2.35	"	2.60
White Blank News	1.40	@	1.50
No. 1 Kraft	1.40	@	1.50
Extra No. 1 Kraft	1.60	"	1.90
Mixed Papers	.22½	"	.25
Print Manila	.50	"	.55
Container Manila	.60	"	.70
Old Newspapers	.45	"	.50
Paper Wool Strings	.90	"	1.10
Overissue News	1.00	"	1.10
Box Board Chips	.40	"	.45
Corrugated Boxes	.50	"	.55
Kraft corrugated boxes	1.20	"	1.40
New Kraft Cuttings	2.00	"	2.25
Screening Wrappers	.60	"	.70

Bagging

(f.o.b. Boston)

Gunny Bagging—			
Foreign	(nominal)		

CHICAGO

Waste Paper

(f.o.b. Chicago)

Shavings—			
No. 1 White Envelope cuttings	2.40	@	—
No. 1 Hard White	2.15	"	2.20
No. 1 Soft White	1.85	"	1.95
Ledger and Writings	.85	"	.95
Solid Books	.95	"	1.05
Blanks	1.50	"	1.65
Krafts	1.15	"	1.35
New Kraft Cuts	1.40	"	1.50
Overissue News	.80	"	1.00
Old Newspapers—			
No. 1 Folded News	.65	"	.75
No. 1 Mixed Paper	.35	"	.55
Roofing Stocks—			
No. 1	.95	@	1.00
No. 2	.85	"	.90

Canada's Exports Up in April

MONTREAL, Que., June 3, 1940—The value of Canada's exports of pulp and newsprint in April was practically double that of April, 1939, according to official figures just released from Ottawa. The total for the two commodities amounted to $16,670,912, as compared with $8,984,048 in April, 1939.

The newsprint exports for the month totalled 5,277,676 cwt., valued at $12,317,752, as compared with 3,247,041 cwt., valued at $6,955,061 in April, 1939. Of this total 4,245,108 cwt., valued at $9,653,231, went to the United States. The next largest purchasers were Australia, which took 265,957 cwt., valued at $656,337; New Zealand, 167,261 cwt., valued at $432,413; Argentina, 192,460 cwt., valued at $420,920; British South Africa, 55,596 cwt., valued at $161,144; Mexico, 53,241 cwt., valued at $133,272; Brazil, 27,875 cwt., valued at $68,643; China, 25,667 cwt., valued at $64,546; Cuba, 15,678 cwt., valued at $32,091.

Of wood pulp the largest exports were of bleached sulphite, which totalled 778,633 cwt., valued at $2,518,662, as compared with 404,213 cwt., valued at $1,195,494 in April, 1939. Unbleached sulphite exports totalled 332,821 cwt,, valued at $779,105, as compared with 108,721 cwt., valued at $206,911; kraft sulphate exports were 228,803 cwt., valued at $692,080, as compared with 137,475 cwt., valued at $356,438; mechanical pulp exports were 236,934 cwt., valued at $308,474, as compared with 167,065 cwt., valued at $233,363.